U.S. Department of the Interior
Bureau of Land Management

Willow Master Development Plan

Environmental Impact Statement

FINAL

Volume 3: Appendix A.2

Figures 3.14.1 - 4.3.5

August 2020

Prepared by:
U.S. Department of the Interior
Bureau of Land Management

In Cooperation with:
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Native Village of Nuiqsut
Iñupiat Community of the Arctic Slope
City of Nuiqsut
North Slope Borough
State of Alaska

Estimated Total Costs Associated with Developing and Producing this EIS:
$6,668,400

Mission

To sustain the health, diversity, and productivity of the public lands for the future use and enjoyment of present and future generations.

Cover Photo Illustration: Caribou in the Alpine Development on Alaska's North Slope.
Photo by: Wendy Mahan, courtesy of ConocoPhillips.

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DOI-BLM-AK-0000-2018-0004-EIS
BLM/AK/PL-19/012+1610+F010

Willow Master Development Plan

Appendix A.2
Figures 3.14.1 – 4.3.5

August 2020

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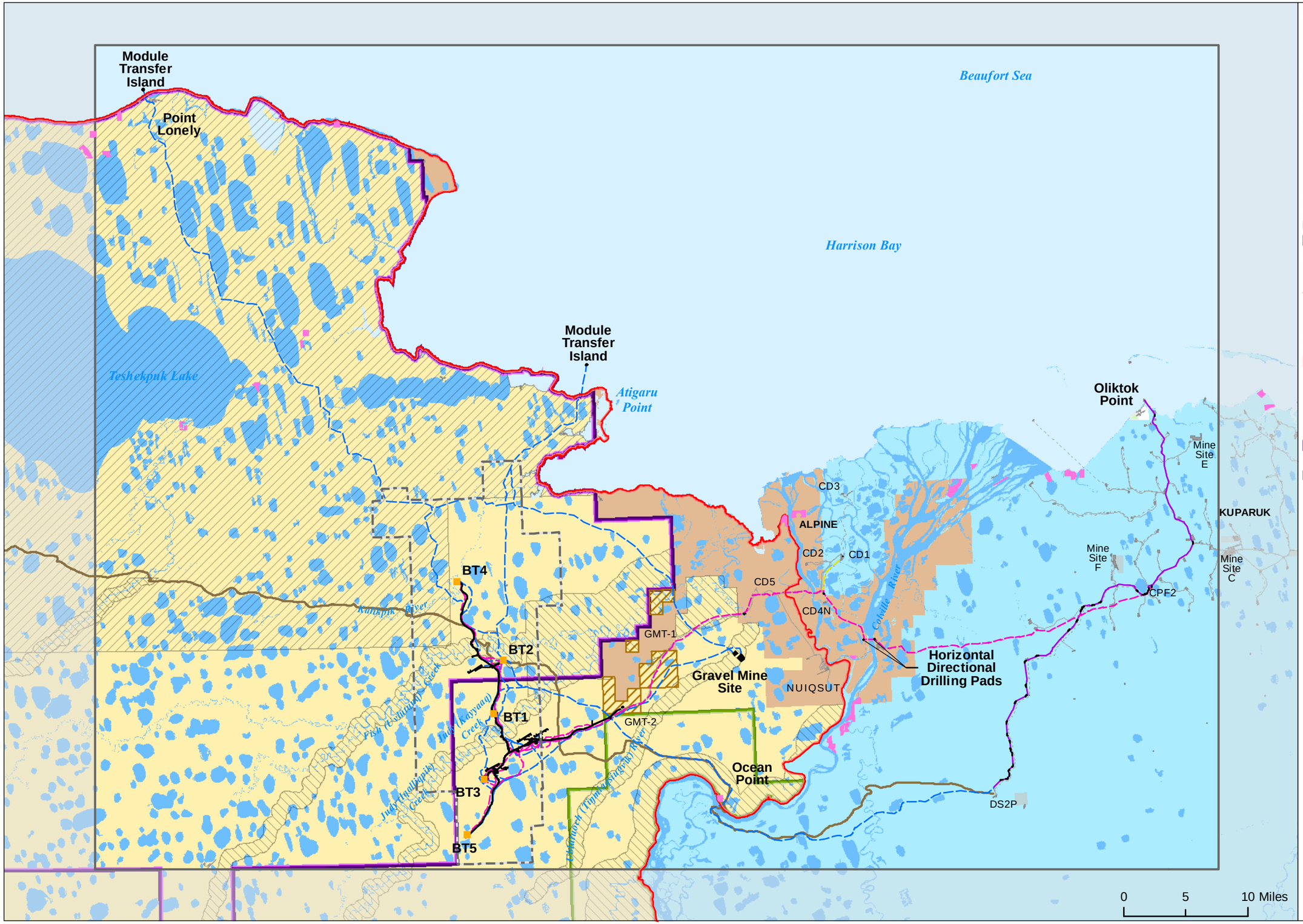

Administered Lands
- Bureau of Land Management
- State of Alaska
- Local Government
- Native Allotment
- Native Lands
- Private
- Water

Willow Proposed Development Features
- Drill Site (Not to Scale)
- Ice Road
- New Pipeline Existing VSM
- New Pipeline New VSM
- Option 3 Existing Road
- Gravel Footprint
- Analysis Area

Other Infrastructure
- Existing Road
- Community Winter Access Trail
- Existing Pipeline
- Existing Infrastructure

Land Designation
- National Petroleum Reserve in Alaska
- BMP K-5 Teshekpuk Lake Caribou Habitat Area
- Lease stipulation K-1 river and K-2 deep water lake buffers
- Colville River Special Area
- Teshekpuk Lake Special Area

Oil and Gas Lease Unit
- Bear Tooth

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Figure 3.14.1

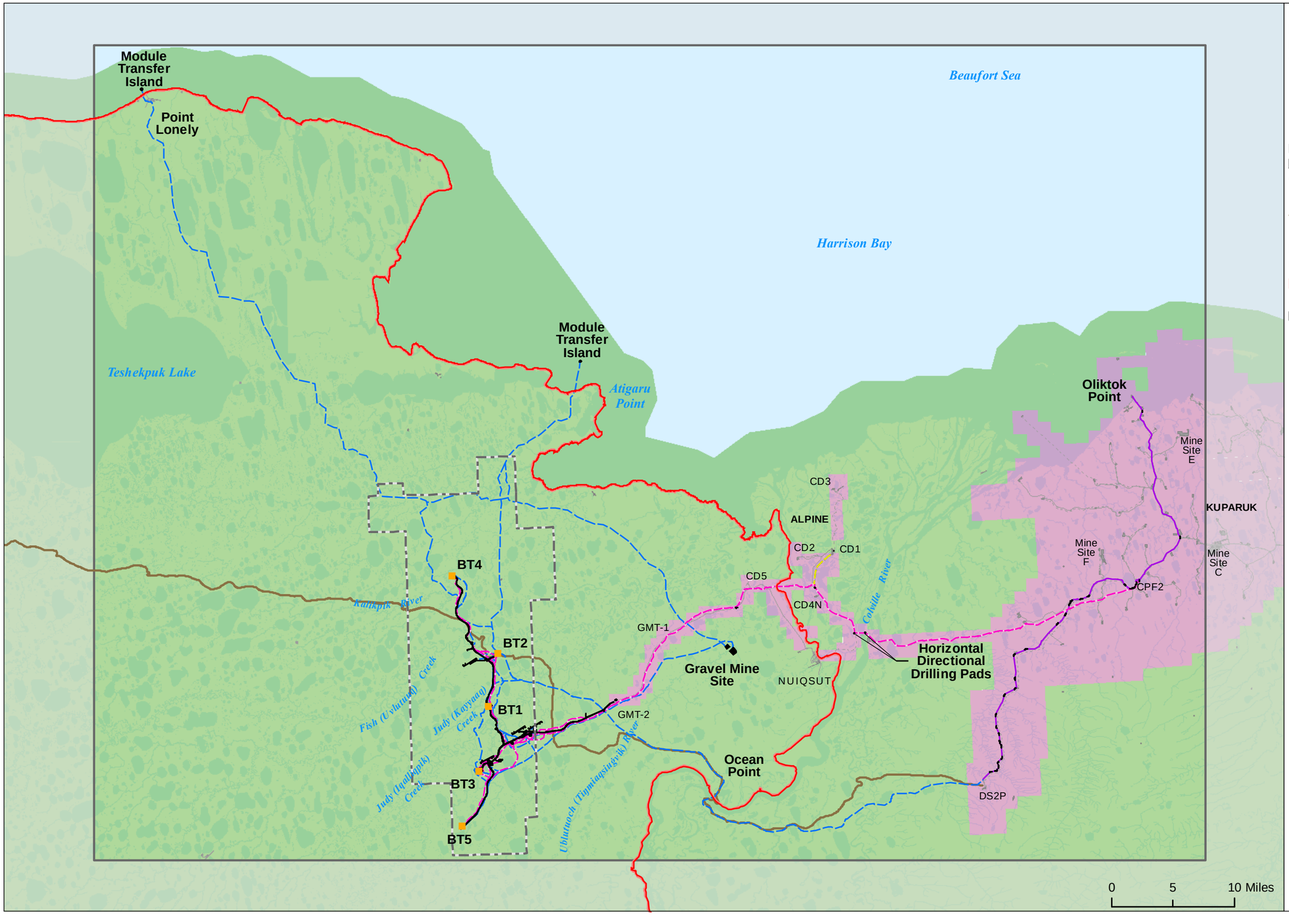

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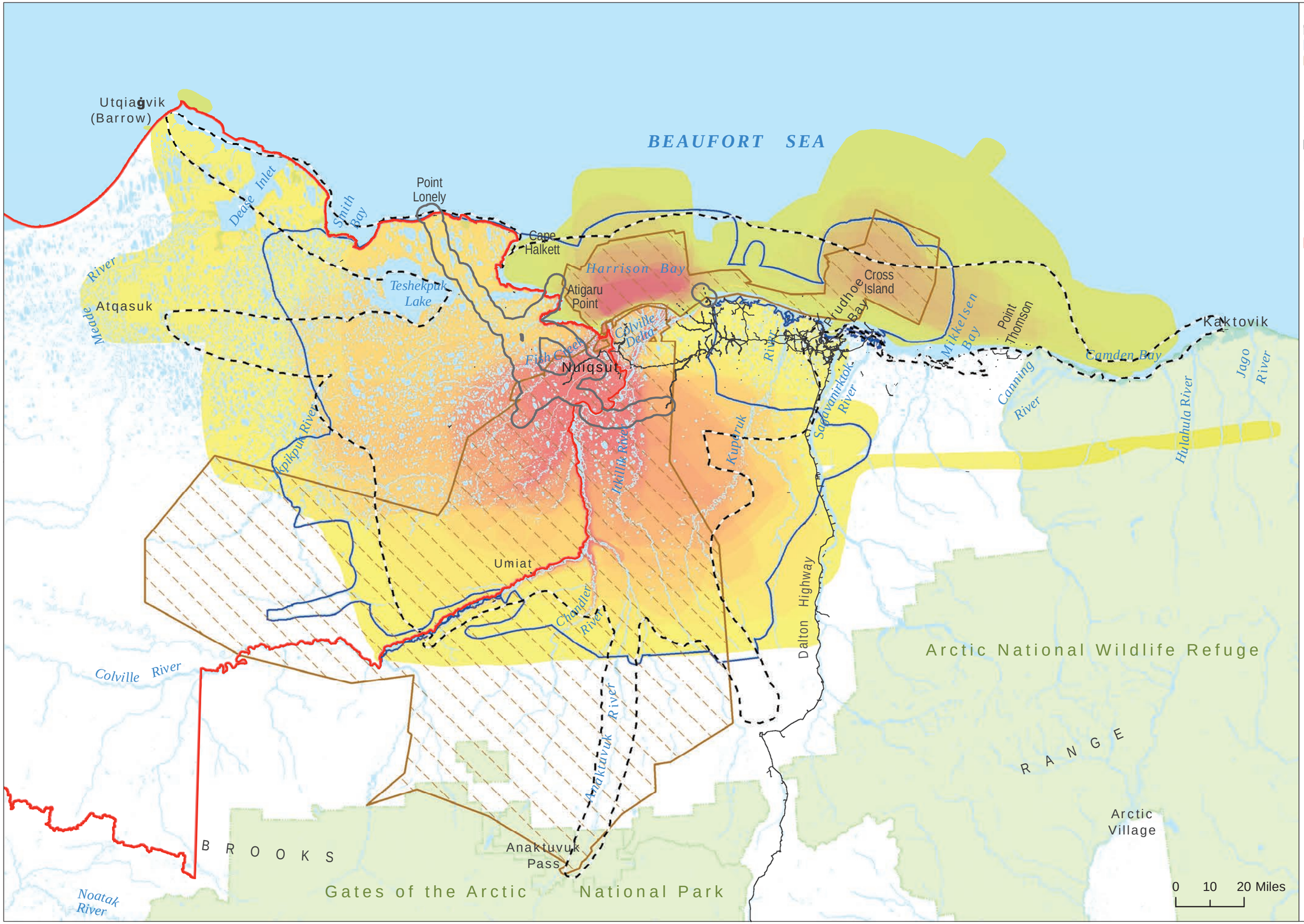
Figure 3.14.2



Subsistence Data
- All Resources, 1973-1986 [a]
- All Resources, 1994-2003 [b]
- All Resources, 2014 [c]
- Overlapping Subsistence Use Areas All Resources, 1995-2006 [d] (High / Low)

Willow Proposed Development Features
- Direct Effects Area

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Land Designation
- National Petroleum Reserve in Alaska

Map prepared by
Stephen R. Braund & Associates

Source
a. Pedersen 1986
b. BLM 2004a
c. Brown, Braem et al. 2016
d. SRB&A 2010b

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Figure 3.16.1

Subsistence Data
- All Resources, Early 1970s [a]
- All Resources, Lifetime Previous to 1979 [b]

Willow Proposed Development Features
- Direct Effects Area

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Land Designation
- National Petroleum Reserve in Alaska

Map prepared by
Stephen R. Braund & Associates

Source
a. Brown 1979
b. Pedersen 1979

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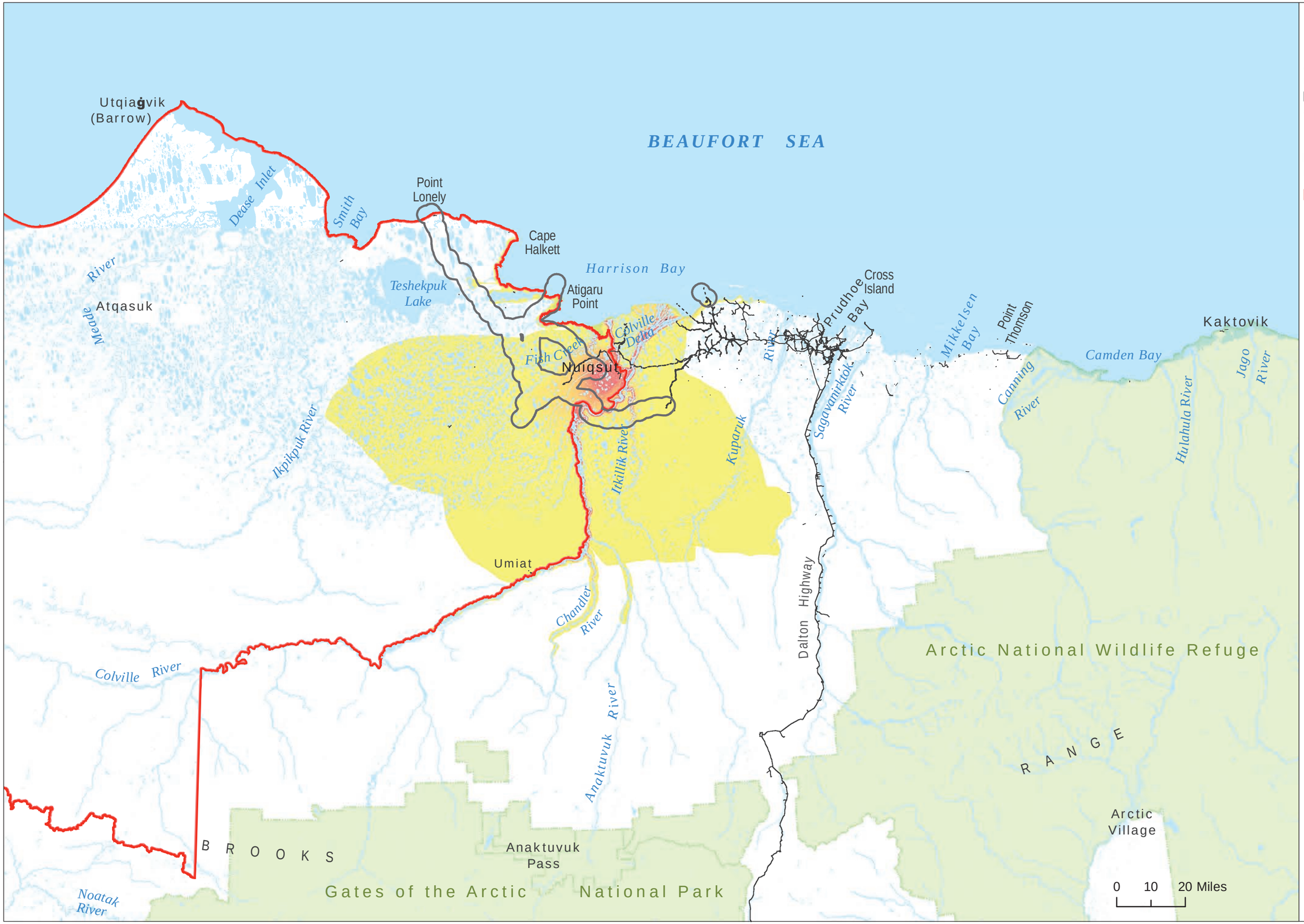
Figure 3.16.2



Subsistence Data

High / Low — Overlapping Subsistence Use Areas[a] Caribou, January 2008 through October 2016

Willow Proposed Development Features

- Direct Effects Area

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Land Designation

- National Petroleum Reserve in Alaska

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2018a

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Figure 3.16.3

CHUKCHI SEA
BEAUFORT SEA
Harrison Bay
Camden Bay
Utqiaġvik (Barrow)
Point Lonely
Cape Halkett
Wainwright
Atqasuk
Teshekpuk Lake
Atigaru Point
Fish Creek
Nuiqsut
Cross Island
Prudhoe Bay
Mikkelsen Bay
Point Thomson
Canning River
Sagavanirktok River
Kuparuk River
Itkillik River
Ikpikpuk River
Umiat
Colville River
Chandler River
Anaktuvuk River
Dalton Highway
Arctic National Wildlife Refuge
Arctic Village
Anaktuvuk Pass
Gates of the Arctic National Park
Noatak Ri
0 10 20 Miles

Subsistence Data
- All Resource Harvest Sites Buffered, 1987-1989 [a]
- All Resources, 1987-1989 [b]
- All Resources, 1994-2003 [c]
- All Resources, 2014 [d]
- Overlapping Subsistence Use Areas All Resources, 1997-2006 [e] (High / Low)

Willow Proposed Development Features
- Direct Effects Area

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Land Designation
- National Petroleum Reserve in Alaska

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A and ISER 1993
b. SRB&A Unpublished
c. BLM 2004a
d. Brown, Braem et al. 2016
e. SRB&A 2010b

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Figure 3.16.4

CHUKCHI SEA
BEAUFORT SEA
Utqiaġvik (Barrow)
Wainwright
Atqasuk
Nuiqsut
Umiat
Point Lonely
Cape Halkett
Atigaru Point
Harrison Bay
Teshekpuk Lake
Prudhoe Bay
Cross Island
Mikkelsen Bay
Point Thomson
Camden Bay
Arctic Village
Anaktuvuk Pass
Dease Inlet
Smith Bay
Meade River
Kuk River
Fish Creek
Ikpikpuk River
Itkillik River
Kuparuk River
Sagavanirktok River
Canning River
Chandler River
Anaktuvuk River
Colville River
Dalton Highway
Arctic National Wildlife Refuge
Gates of the Arctic National Park
0 10 20 Miles

Subsistence Data
All Resources, Lifetime Previous to 1979 [a]

Willow Proposed Development Features
Direct Effects Area

Other Infrastructure
Existing Road
Existing Pipeline
Existing Infrastructure

Land Designation
National Petroleum Reserve in Alaska

Map prepared by
Stephen R. Braund & Associates

Source
a. Pedersen 1979

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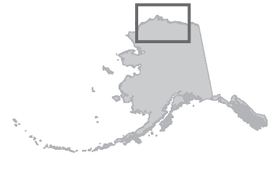
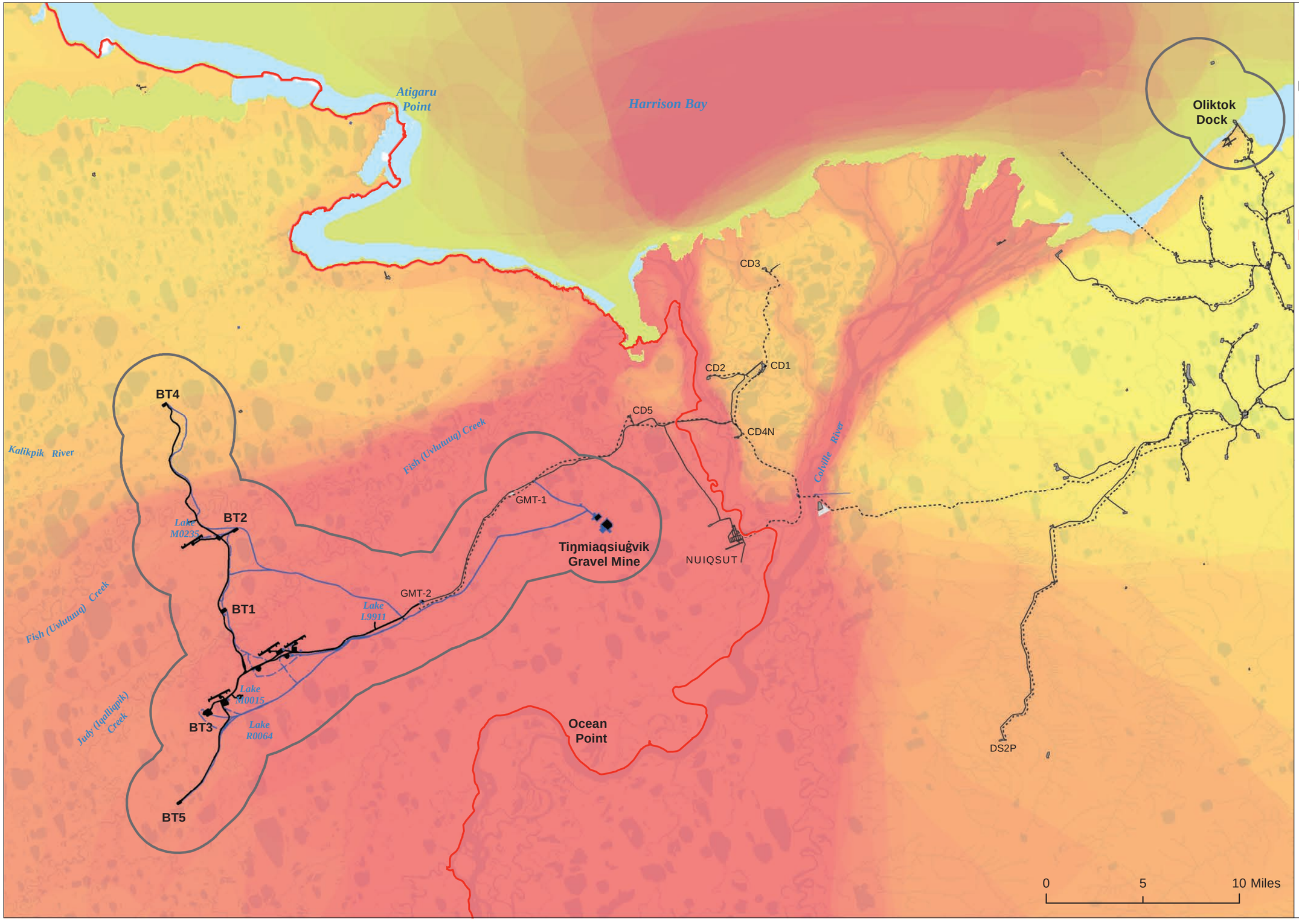


Figure 3.16.5



Subsistence Data

High / Low — Overlapping Subsistence Use Areas All Resources, 1995-2006 [a]

Willow Proposed Development Features

- Alternative Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Land Designation

- National Petroleum Reserve in Alaska

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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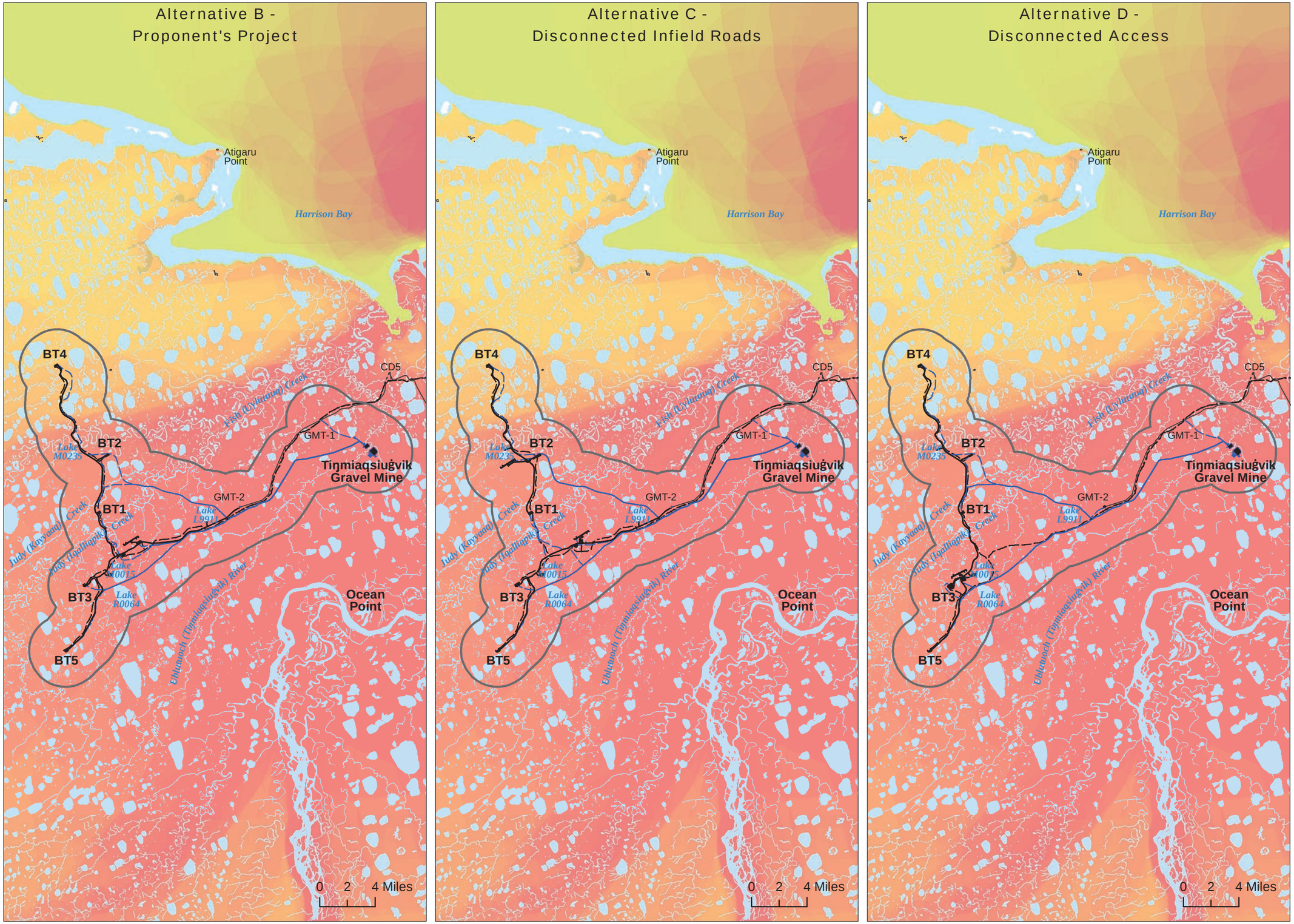
Figure 3.16.6

Alternative B - Proponent's Project

Alternative C - Disconnected Infield Roads

Alternative D - Disconnected Access



Subsistence Data

- High / Low — Overlapping Subsistence Use Areas All Resources, 1995-2006[a]

Willow Proposed Development Features

- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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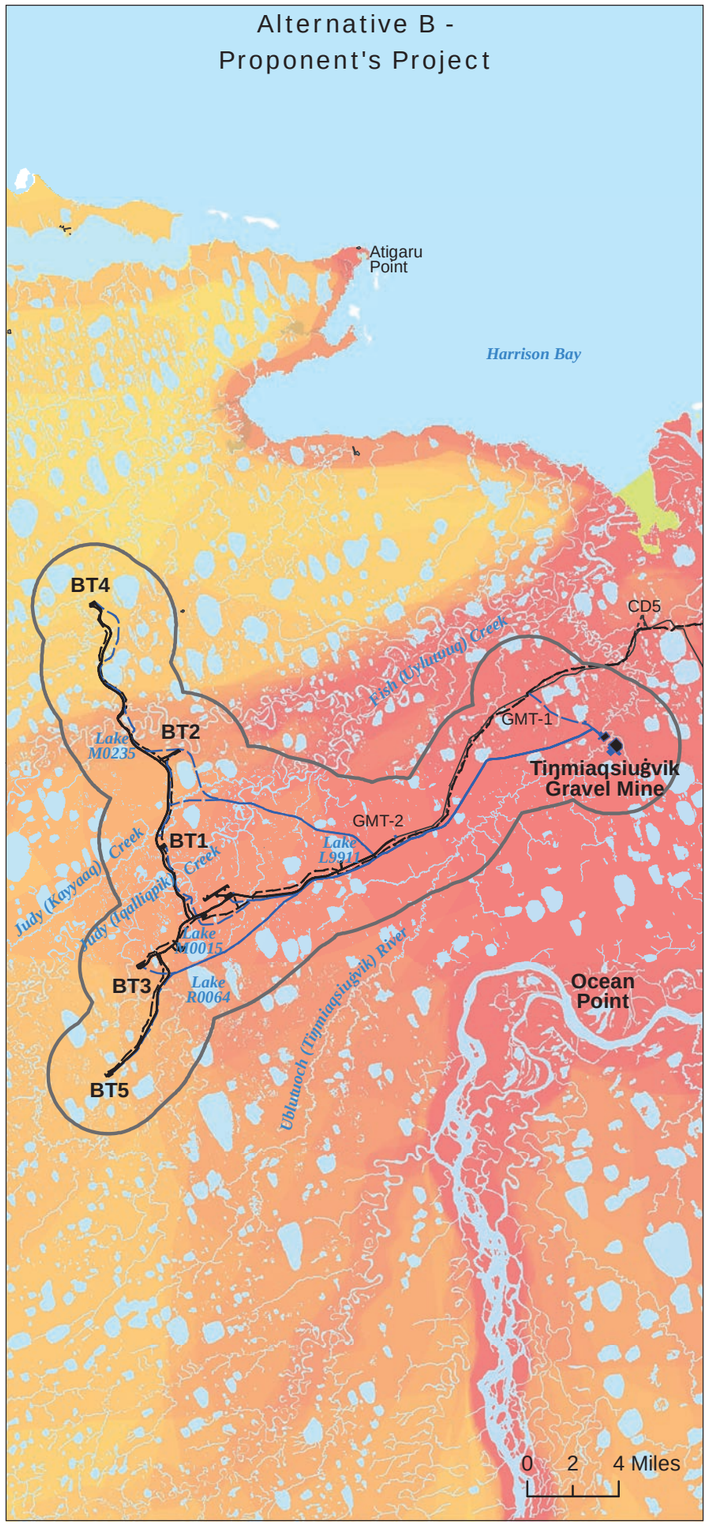
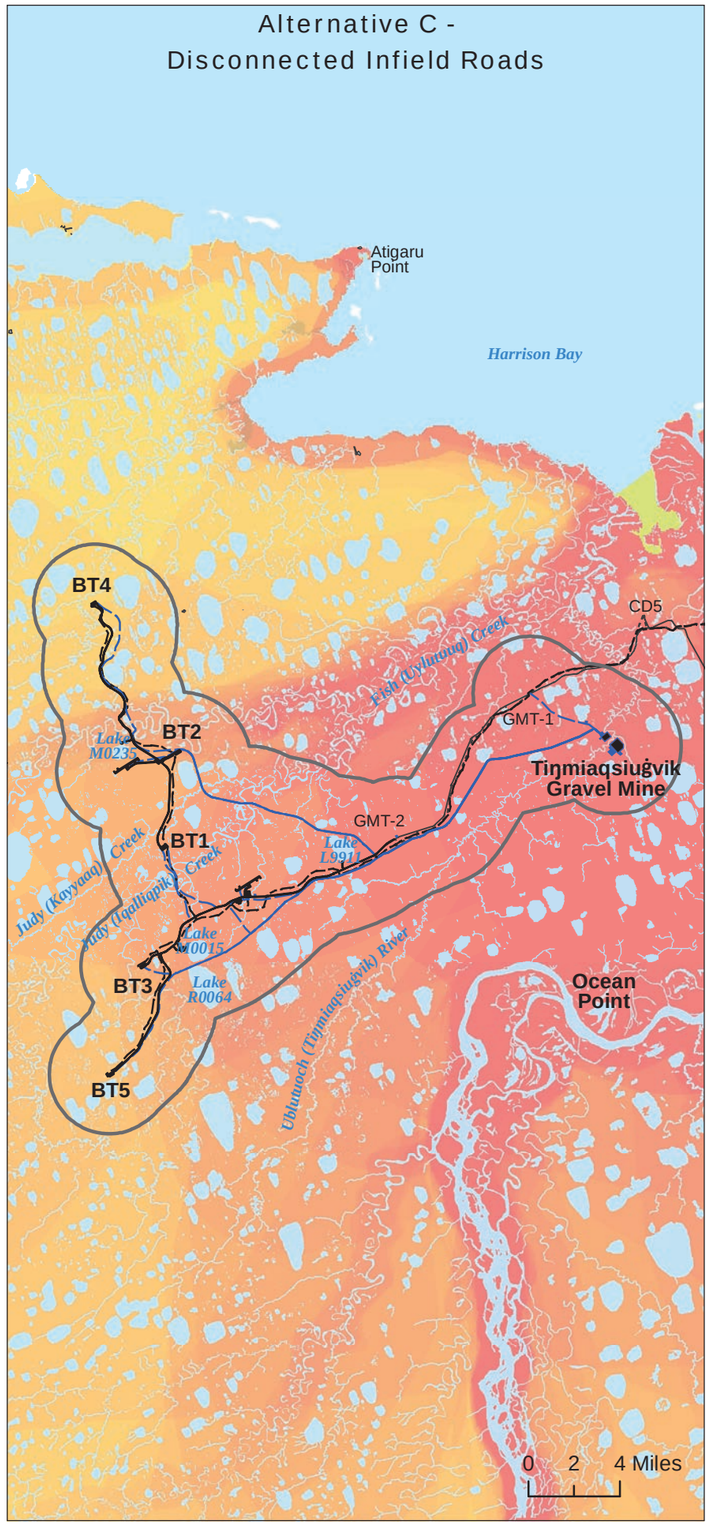
Figure 3.16.7

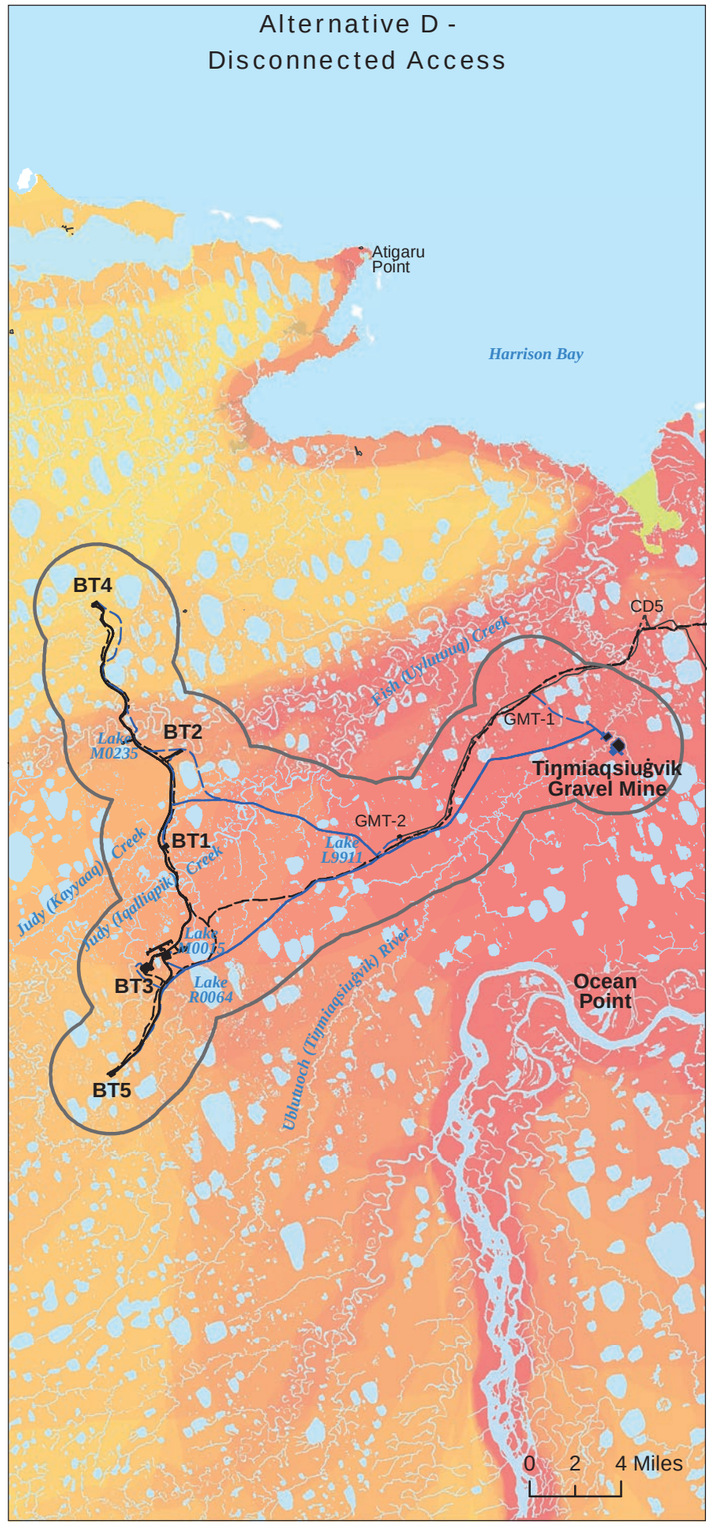
Alternative B - Proponent's Project



Alternative C - Disconnected Infield Roads



Alternative D - Disconnected Access



Subsistence Data

- High / Low — Overlapping Subsistence Use Areas Caribou, 1995-2006[a]

Willow Proposed Development Features

- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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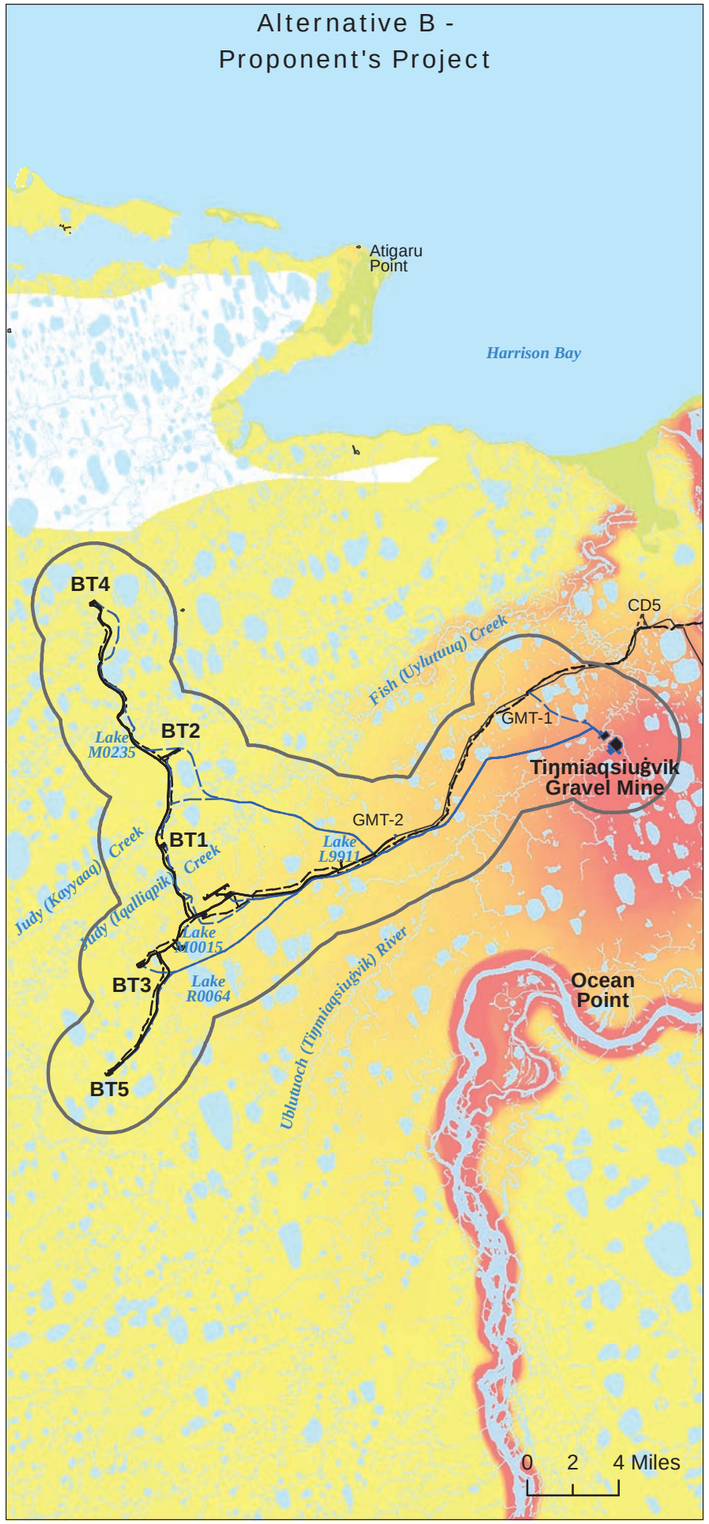
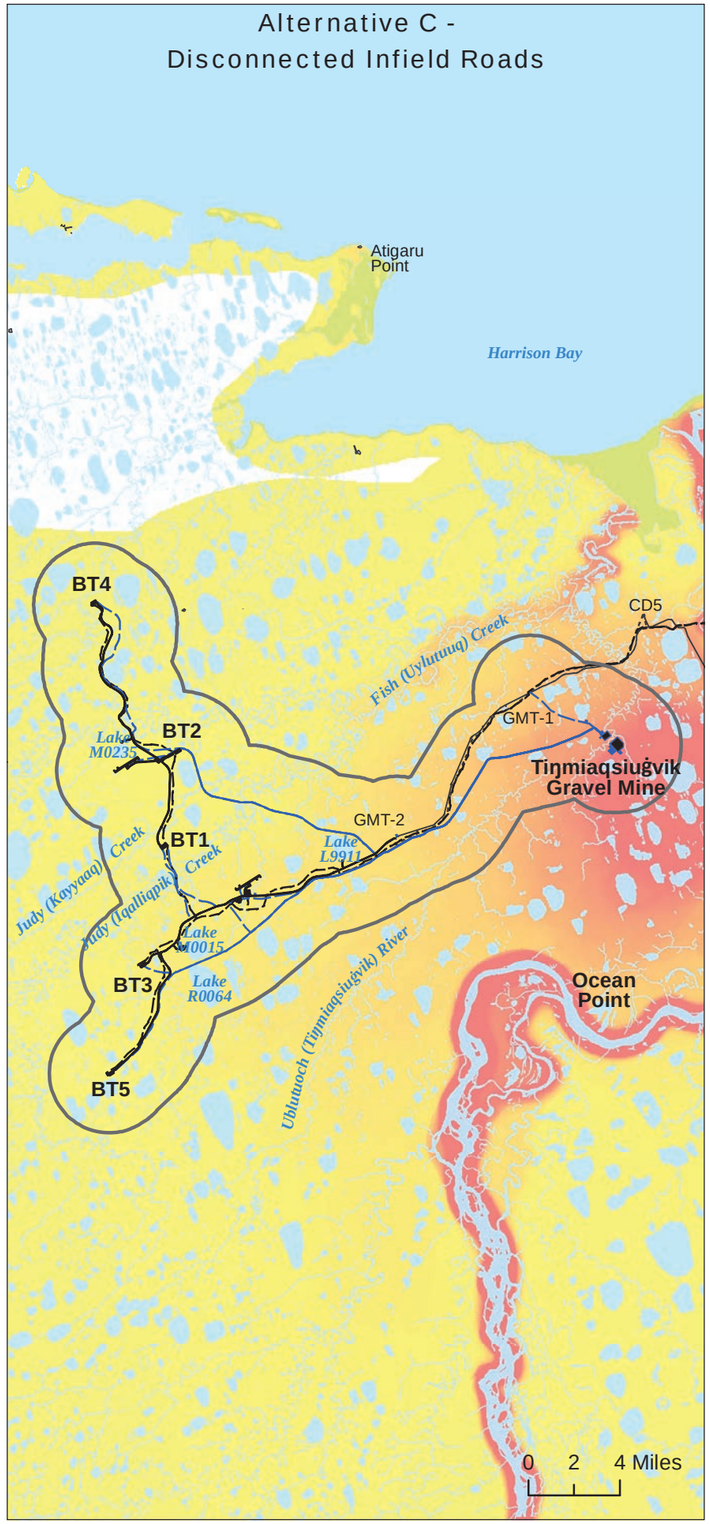
Figure 3.16.8

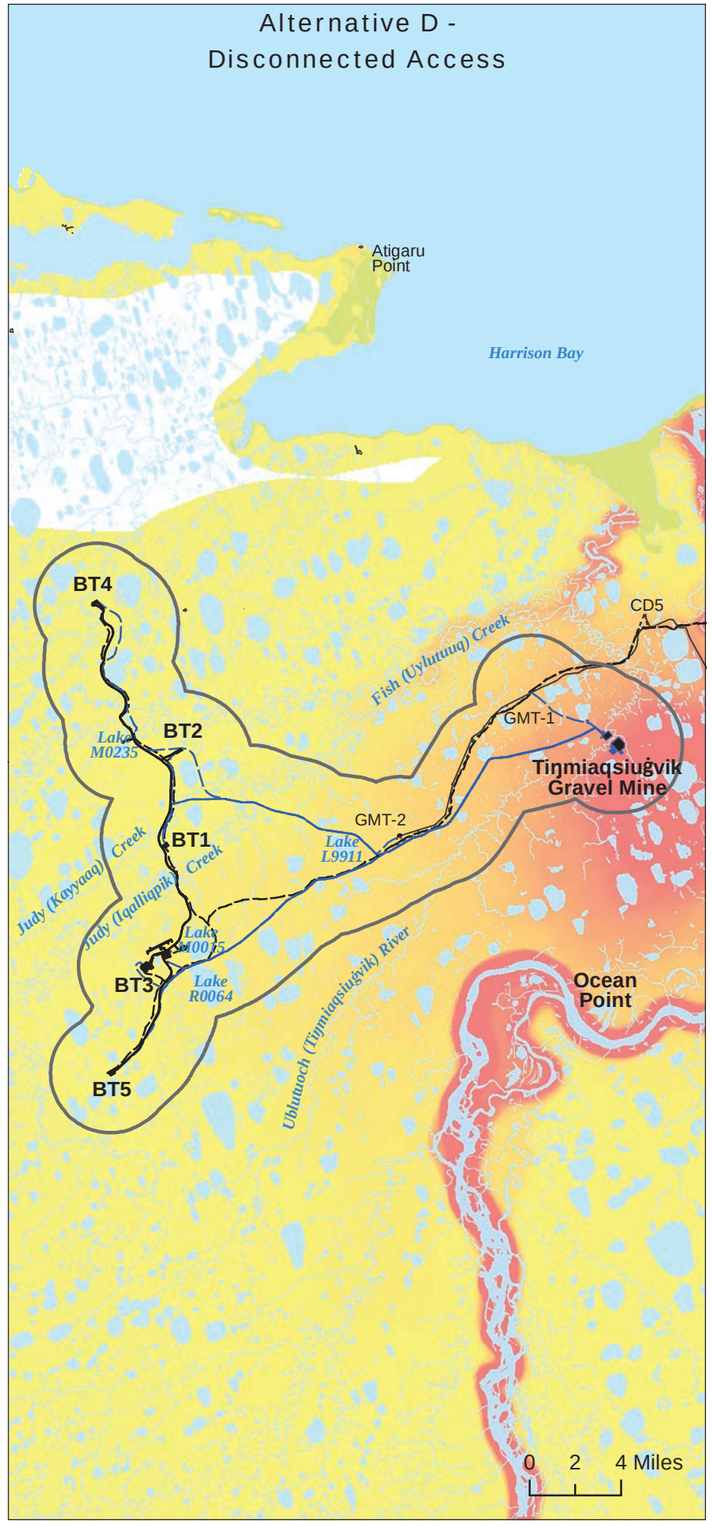
Alternative B - Proponent's Project



Alternative C - Disconnected Infield Roads



Alternative D - Disconnected Access



Subsistence Data

- Overlapping Subsistence Use Areas Caribou, January 2008 through October 2016[a] (High / Low)

Willow Proposed Development Features

- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2018a

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Figure 3.16.9

Alternative B - Proponent's Project

Alternative C - Disconnected Infield Roads

Alternative D - Disconnected Access

Atigaru Point
Harrison Bay
BT4
CD5
Fish (Uyluraaq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
GMT-2
BT1
Lake L9911
Judy (Kayyaaq) Creek
Judy (Iqaaliqpik) Creek
Lake M0015
BT3
Lake R0064
Ocean Point
Ublunioch (Tiŋmiaqsiuġvik) River
BT5
0 2 4 Miles

Subsistence Data
High / Low — Overlapping Subsistence Use Areas Wolf and Wolverine, 1995-2006[a]

Willow Proposed Development Features
- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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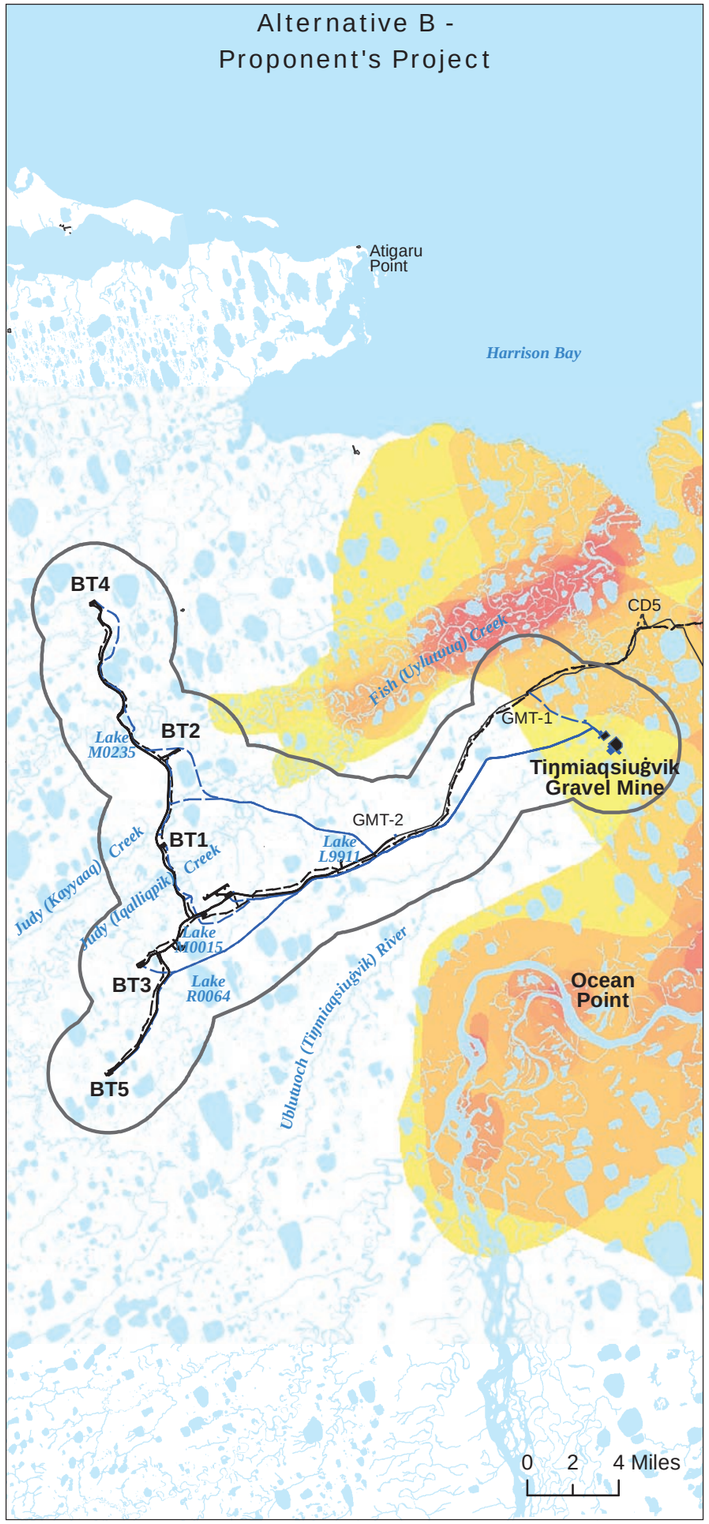
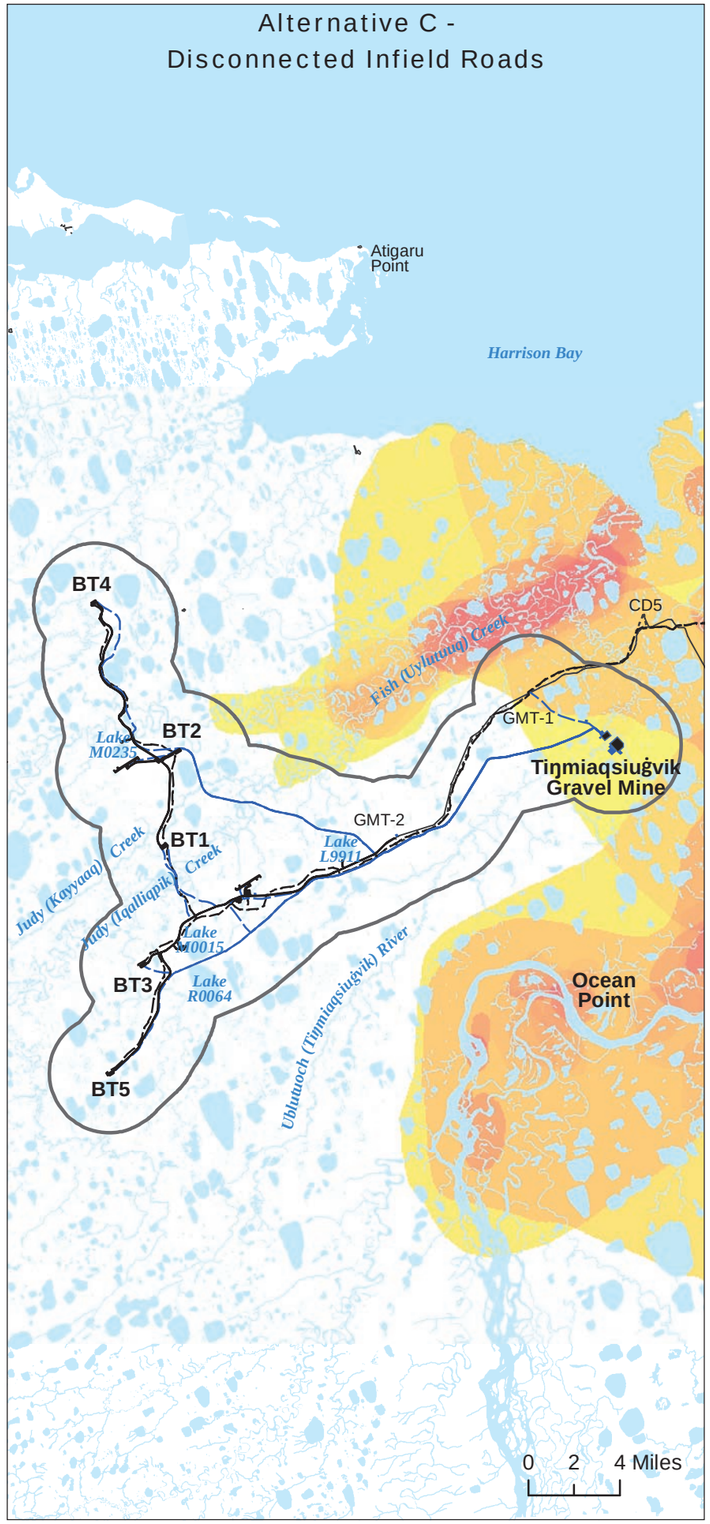
Figure 3.16.10

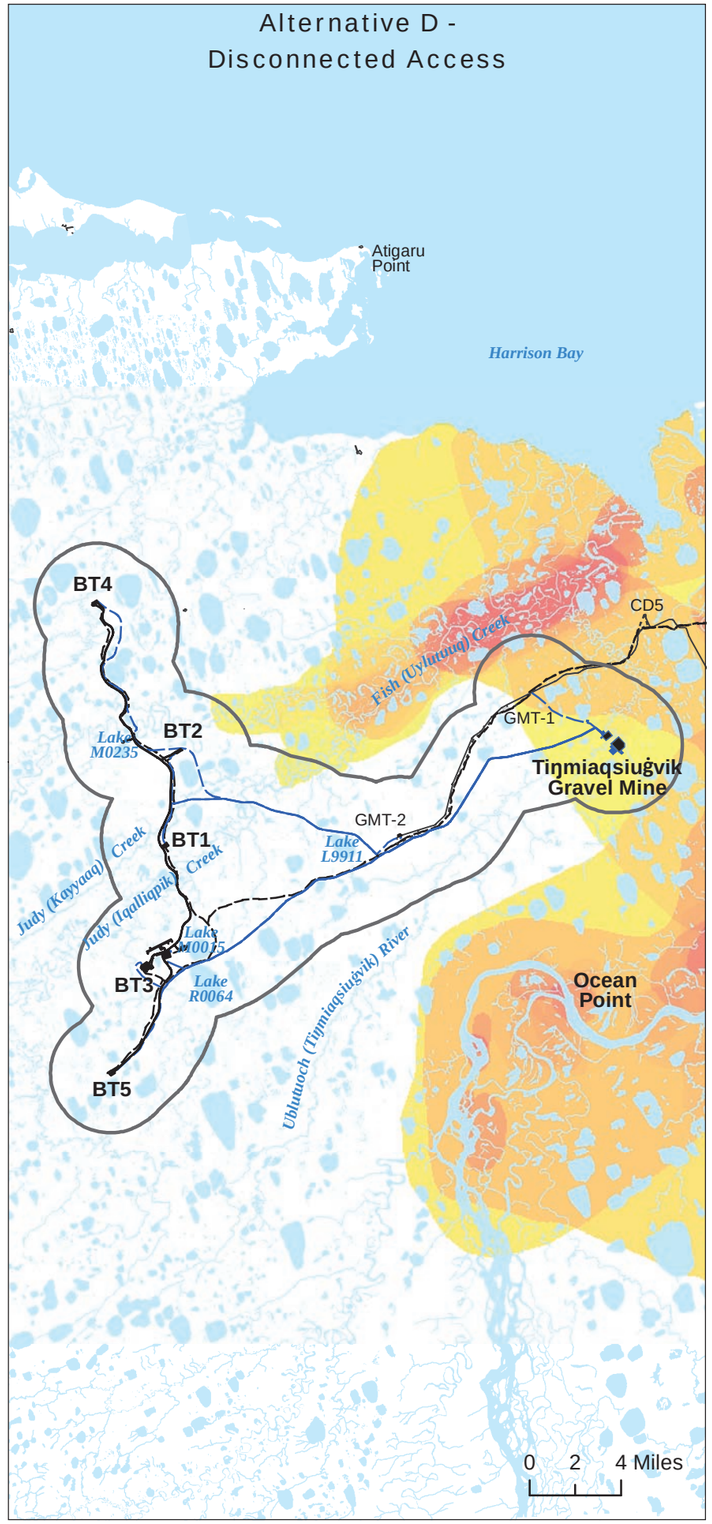
Alternative B - Proponent's Project



Alternative C - Disconnected Infield Roads



Alternative D - Disconnected Access



Subsistence Data

- High / Low — Overlapping Subsistence Use Areas Goose, 1995-2006 [a]

Willow Proposed Development Features

- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.11

Atigaru Point
Harrison Bay
Oliktok Dock
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
BT2
Lake M0235
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
GMT-2
BT1
Lake L9911
Fish (Uvlutuuq) Creek
Lake M0015
Judy (Iqalliqpik) Creek
BT3
Lake R0064
Ocean Point
DS2P
BT5
0
5
10 Miles

Subsistence Data

High / Low — Overlapping Subsistence Use Areas All Resources, 1997-2006 [a]

Willow Proposed Development Features

- Alternative Analysis A
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Land Designation

- National Petroleum Reserve in Alaska

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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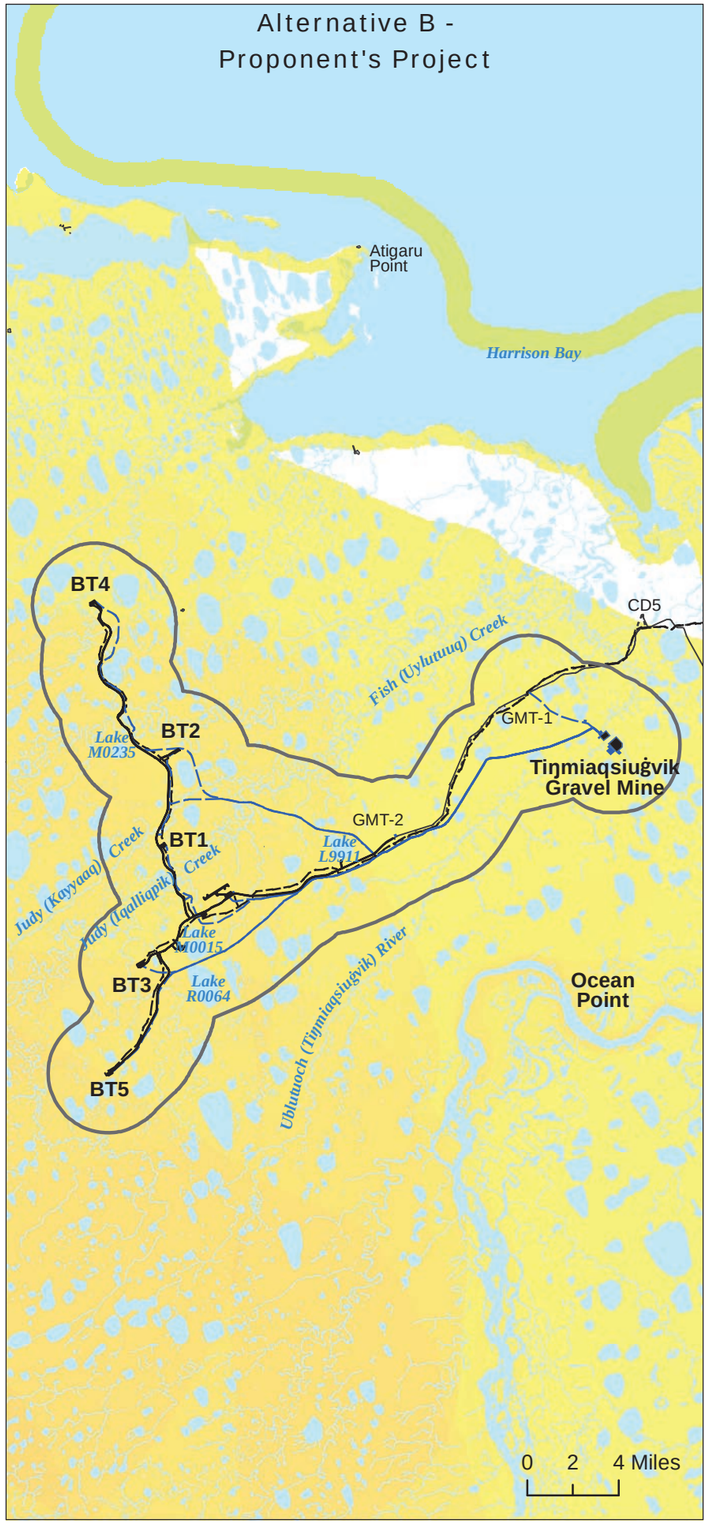
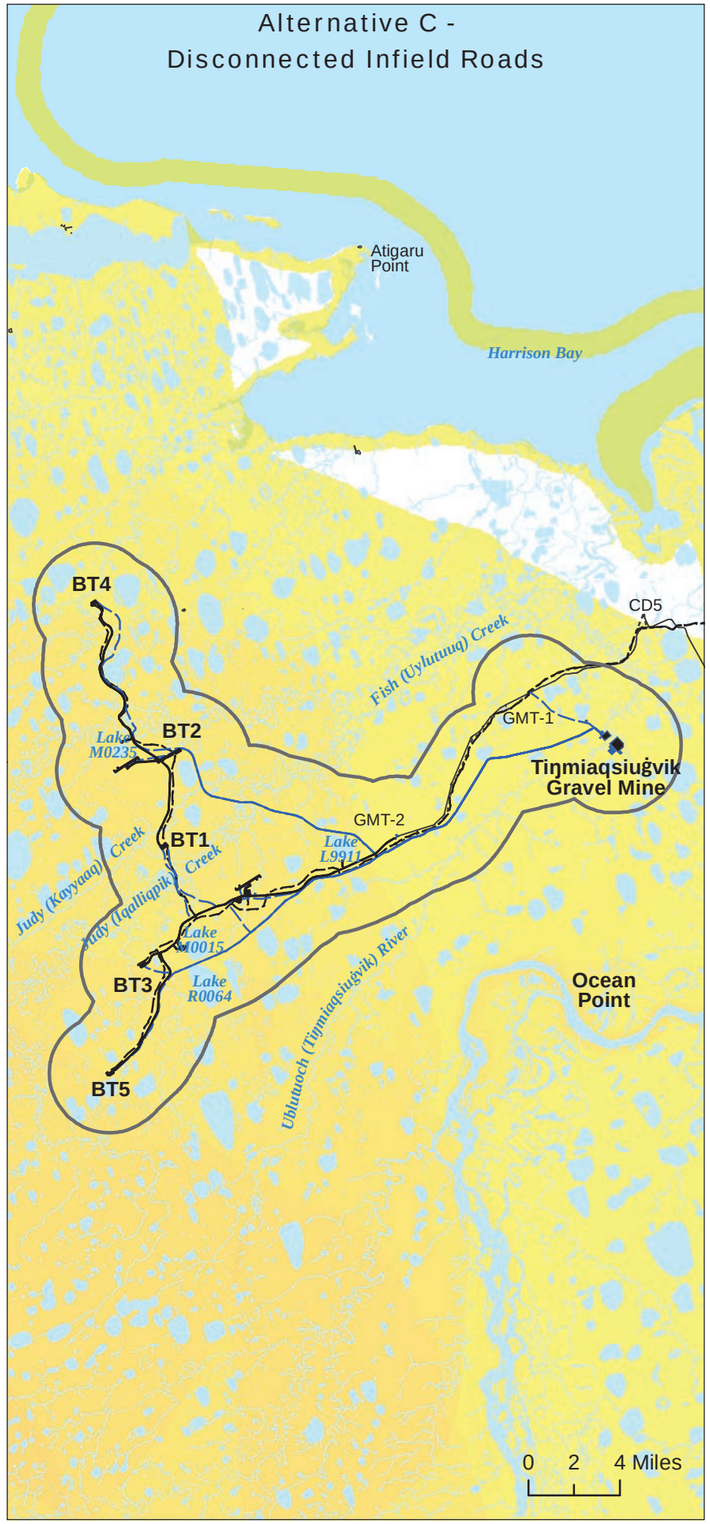
Figure 3.16.12

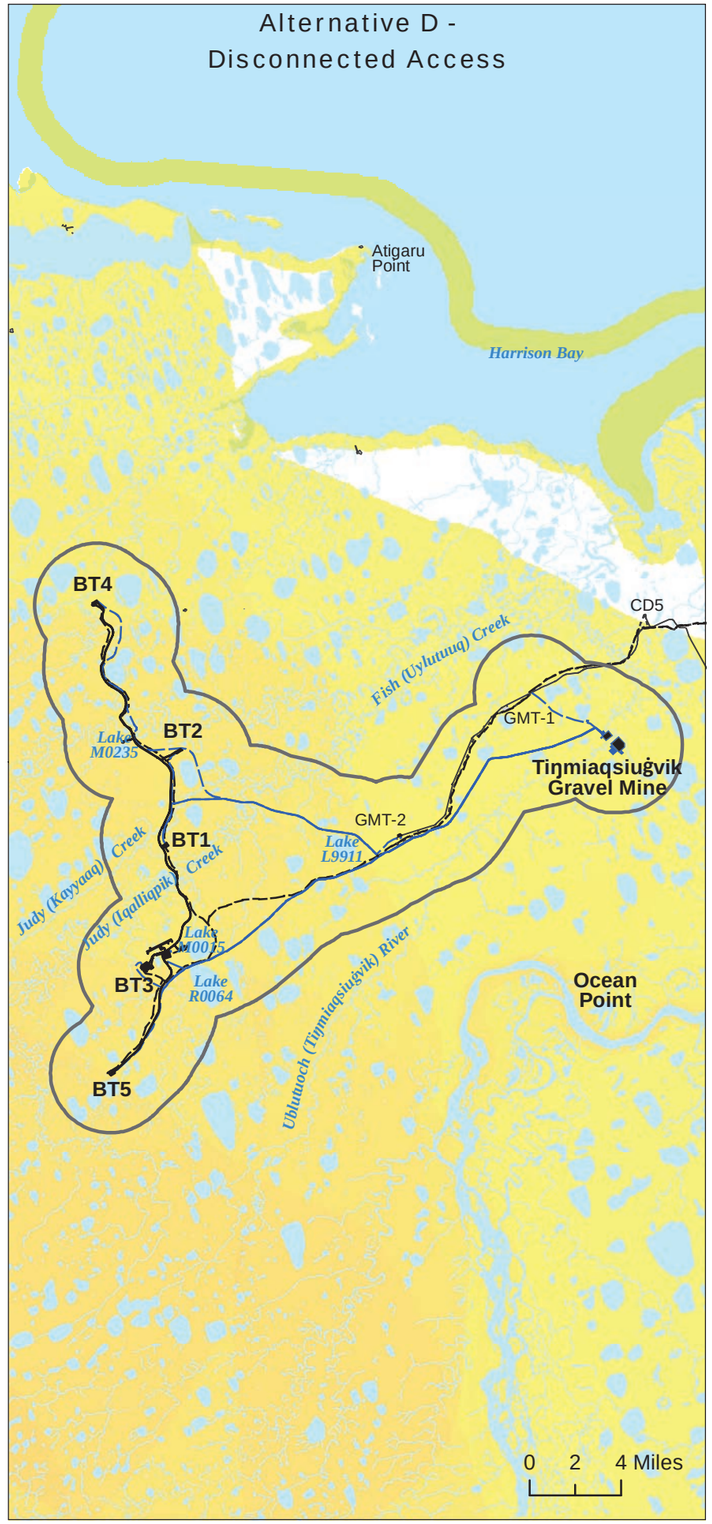
Alternative B - Proponent's Project



Alternative C - Disconnected Infield Roads



Alternative D - Disconnected Access



Subsistence Data

High / Low — Overlapping Subsistence Use Areas All Resources, 1997-2006 [a]

Willow Proposed Development Features

- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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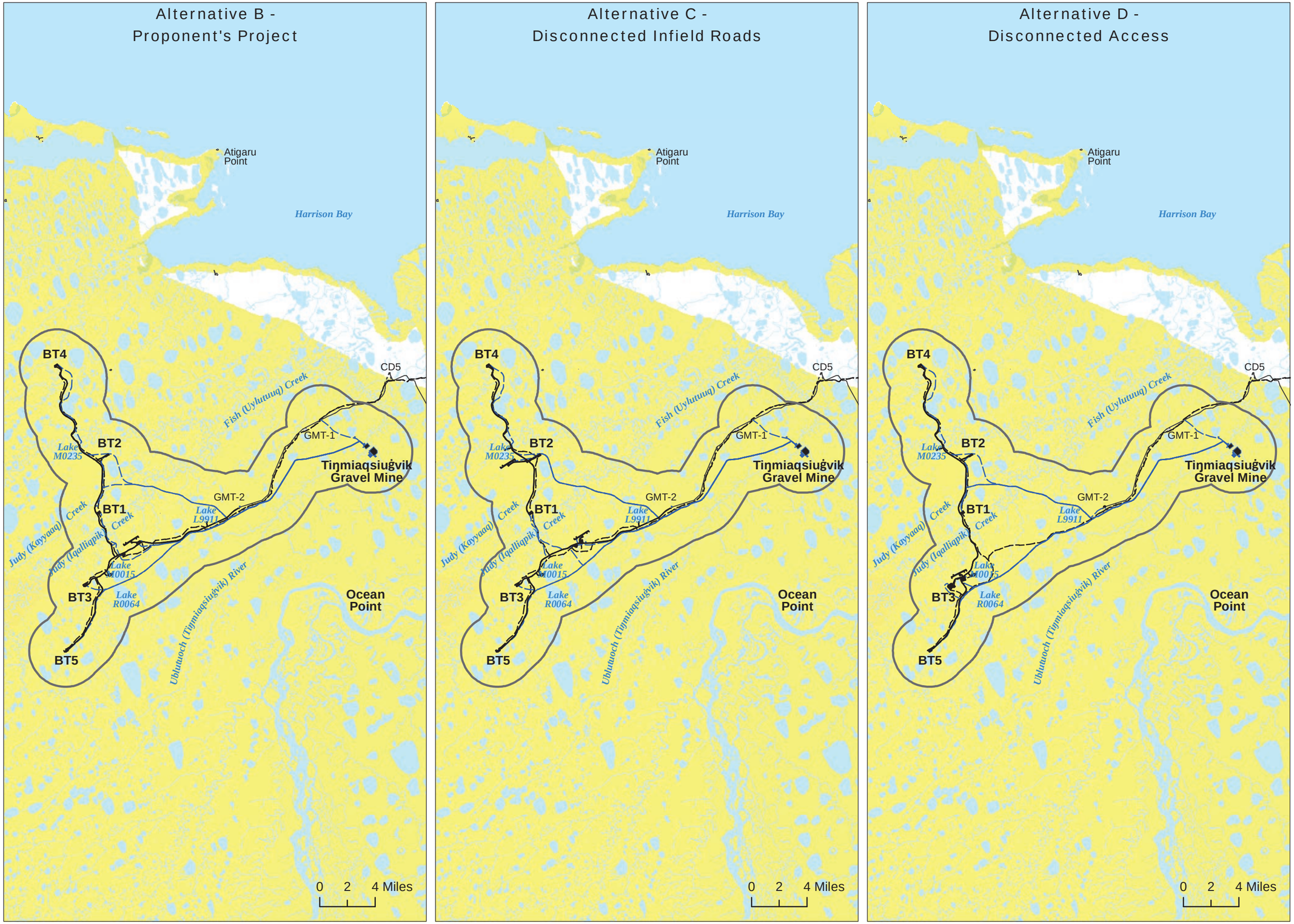
Figure 3.16.13

Alternative B - Proponent's Project

Alternative C - Disconnected Infield Roads

Alternative D - Disconnected Access



Subsistence Data

- High / Low — Overlapping Subsistence Use Areas Caribou, 1997-2006 [a]

Willow Proposed Development Features

- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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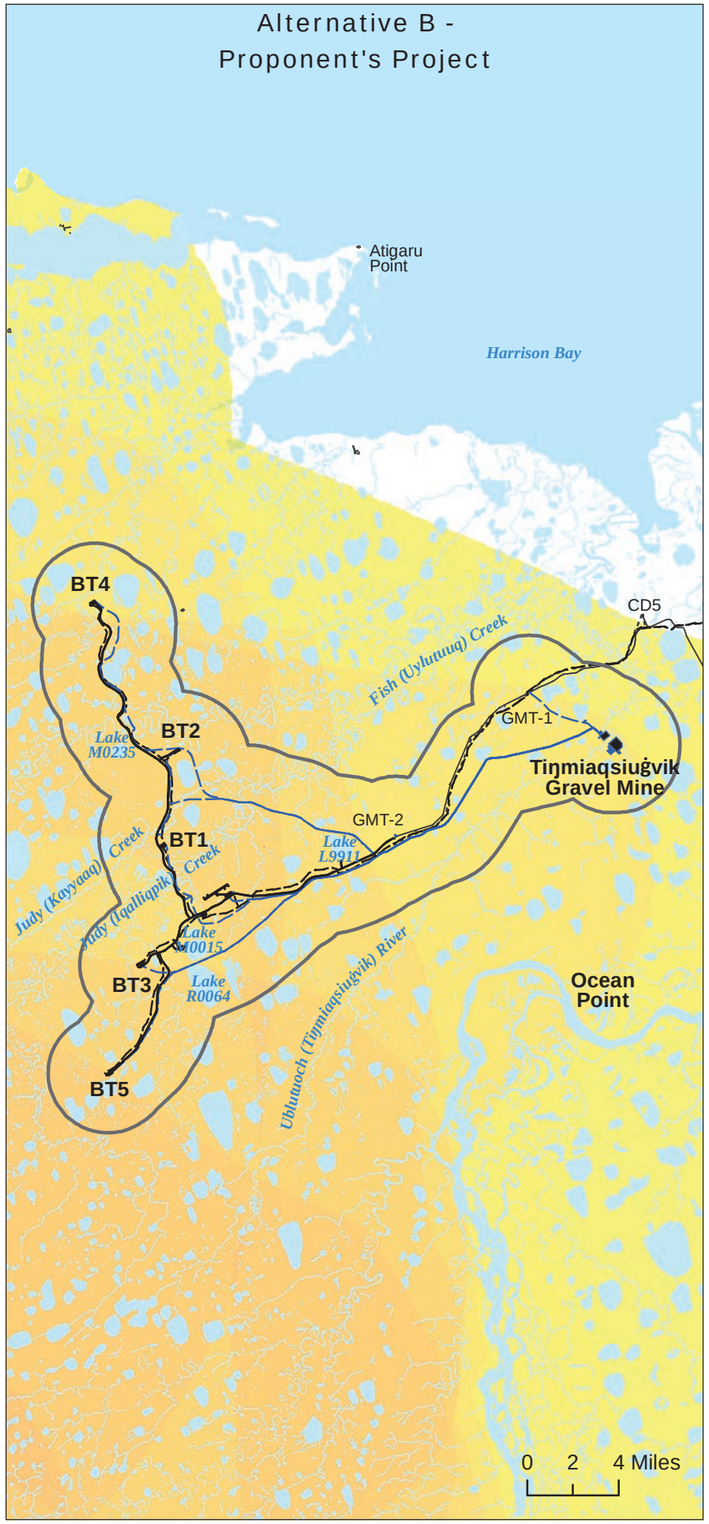
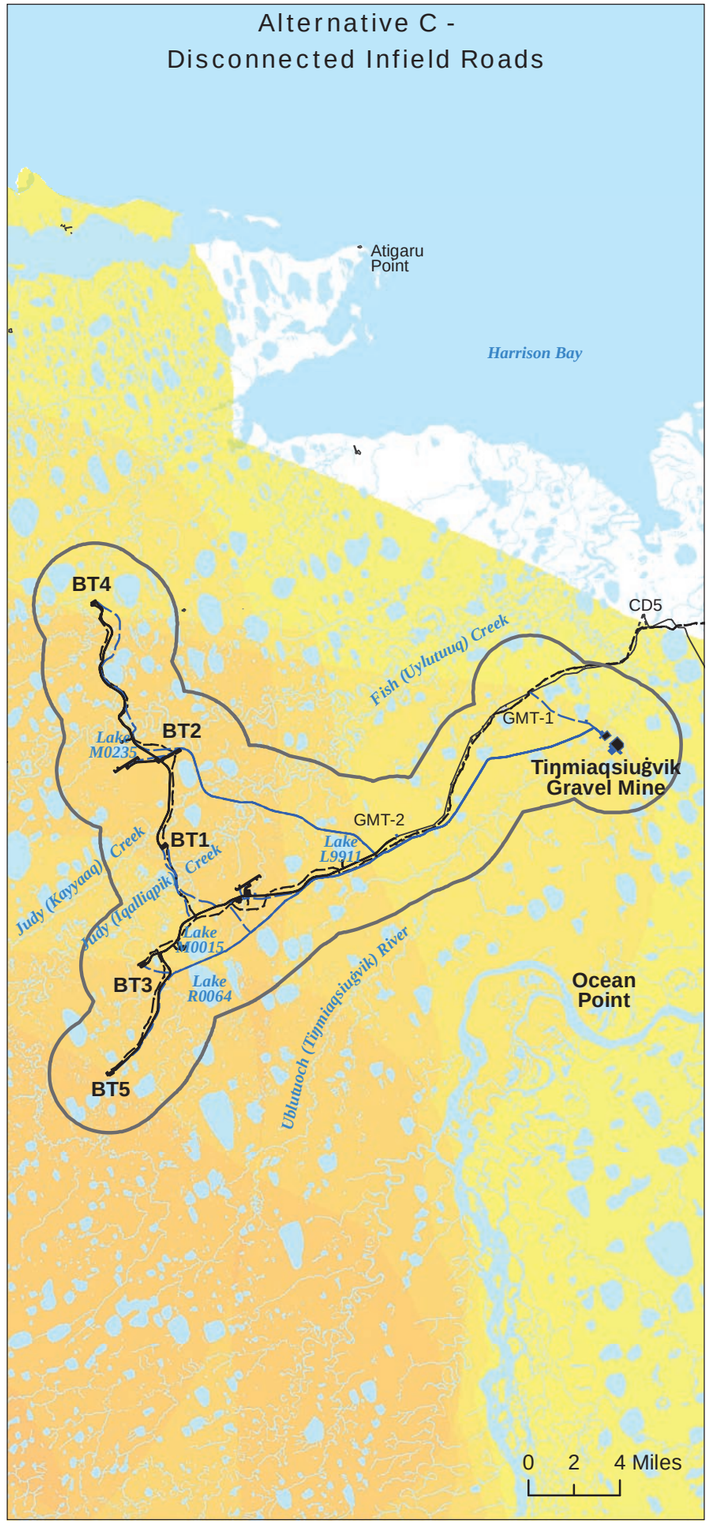
Figure 3.16.14

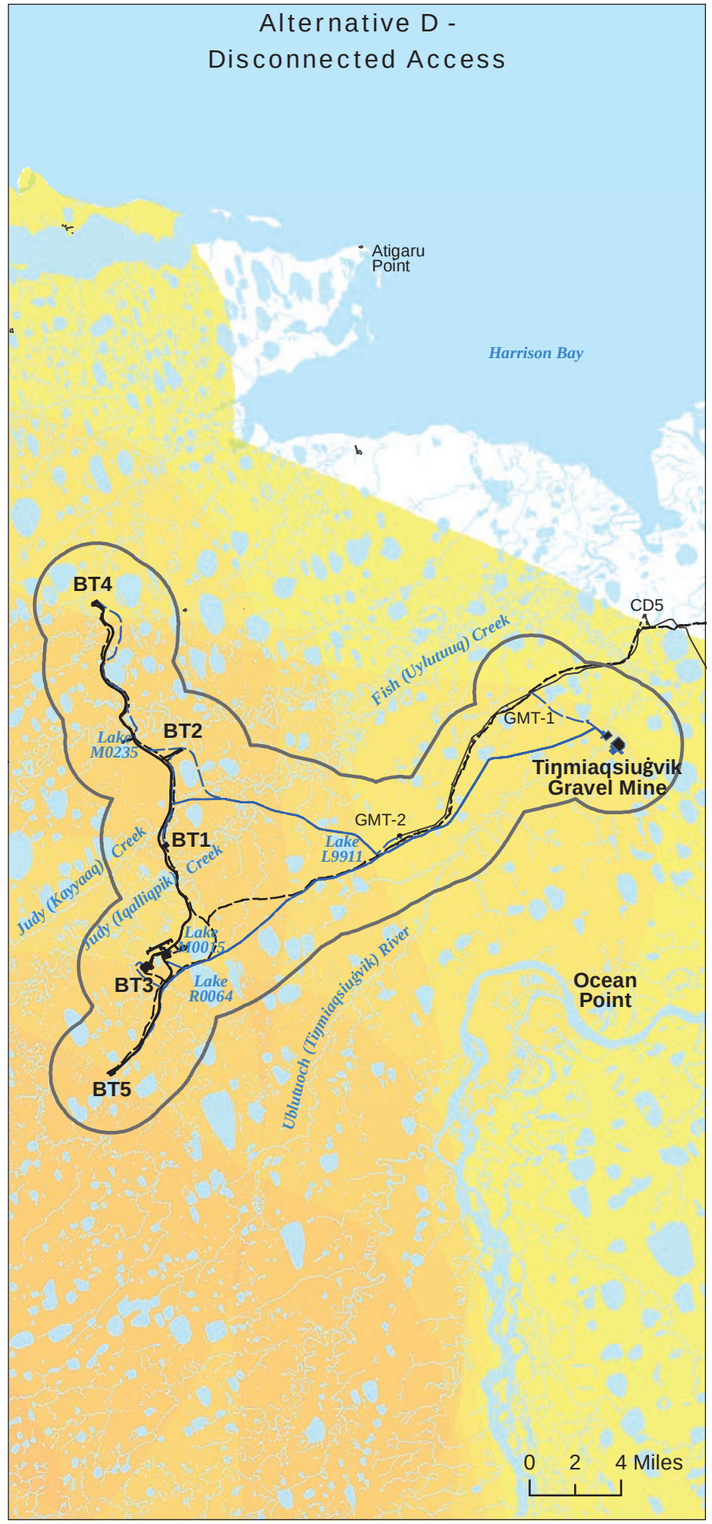
Alternative B - Proponent's Project



Alternative C - Disconnected Infield Roads



Alternative D - Disconnected Access



Subsistence Data

High / Low — Overlapping Subsistence Use Areas Wolf and Wolverine 1997-2006 [a]

Willow Proposed Development Features

- Alternative Analysis Area *
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

* The alternatives analysis area also includes Oliktok Dock (see Maps 3.16.6 and 3.16.12)

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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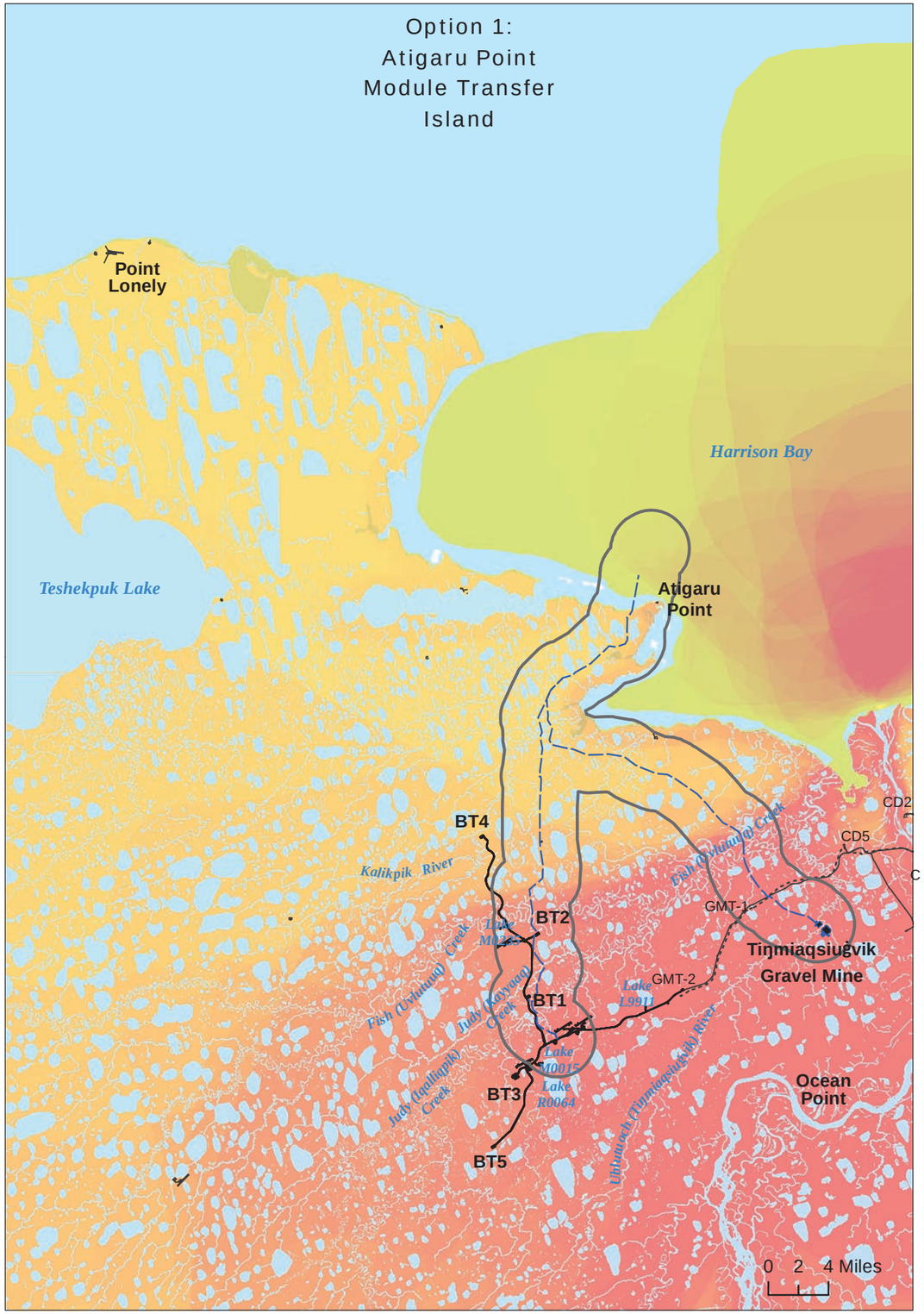
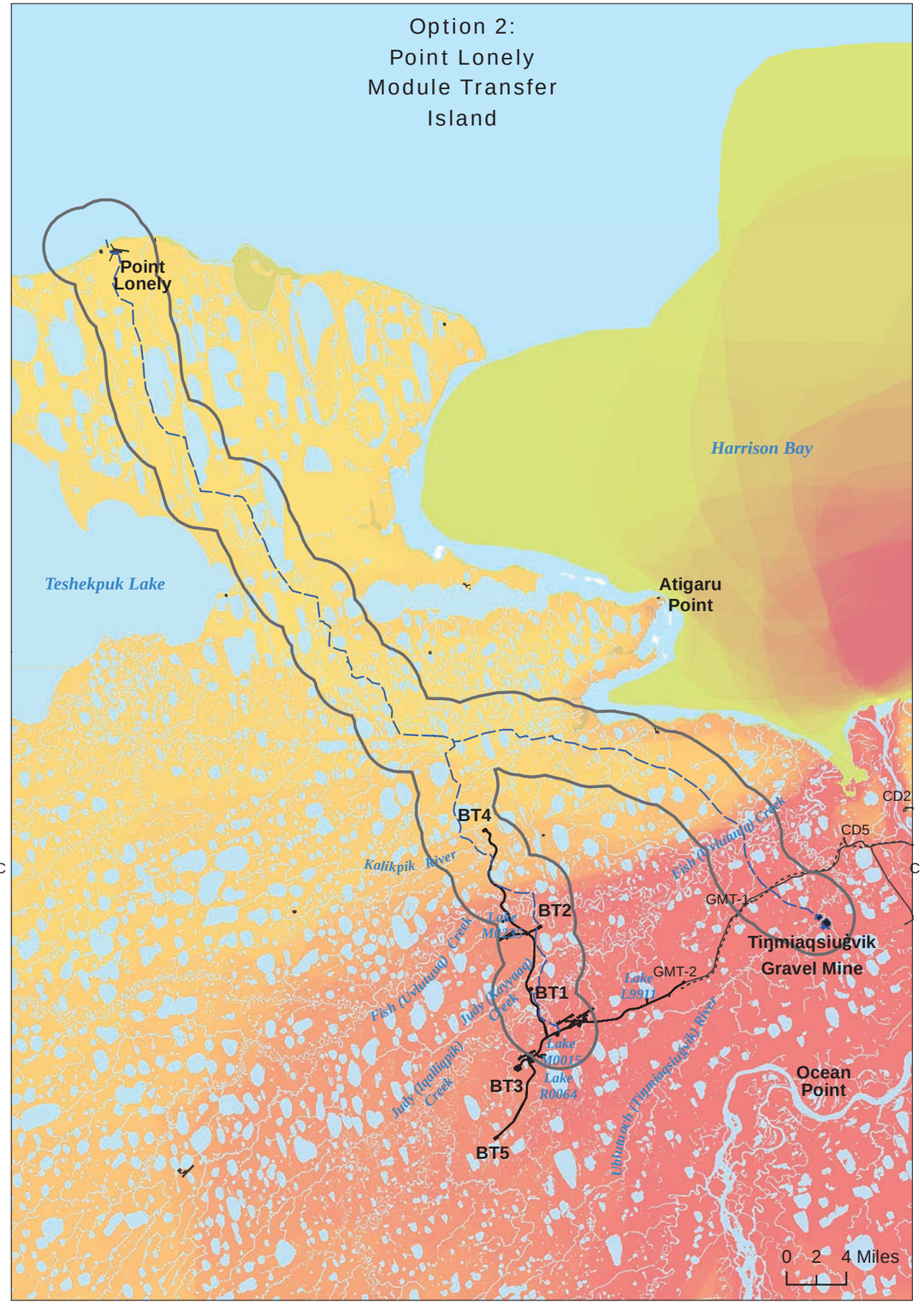
Figure 3.16.15





Subsistence Data

- High / Low — Overlapping Subsistence Use Areas All Resources, 1995-2006 [a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.16

Option 1:
Atigaru Point
Module Transfer
Island

Option 2:
Point Lonely
Module Transfer
Island

Point Lonely
Harrison Bay
Teshekpuk Lake
Atigaru Point
Kalikpik River
Fish (Uvlutuuq) Creek
Judy (Kayyaaq) Creek
Judy (Iqalliqpik) Creek
Ublutuoch (Tiŋmiaqsiuġvik) River
Lake M0015
Lake R0064
Lake L9911
Lake M0012
BT1
BT2
BT3
BT4
BT5
GMT-1
GMT-2
CD2
CD5
Tiŋmiaqsiuġvik Gravel Mine
Ocean Point
0 2 4 Miles

Subsistence Data
- High / Low: Overlapping Subsistence Use Areas Caribou, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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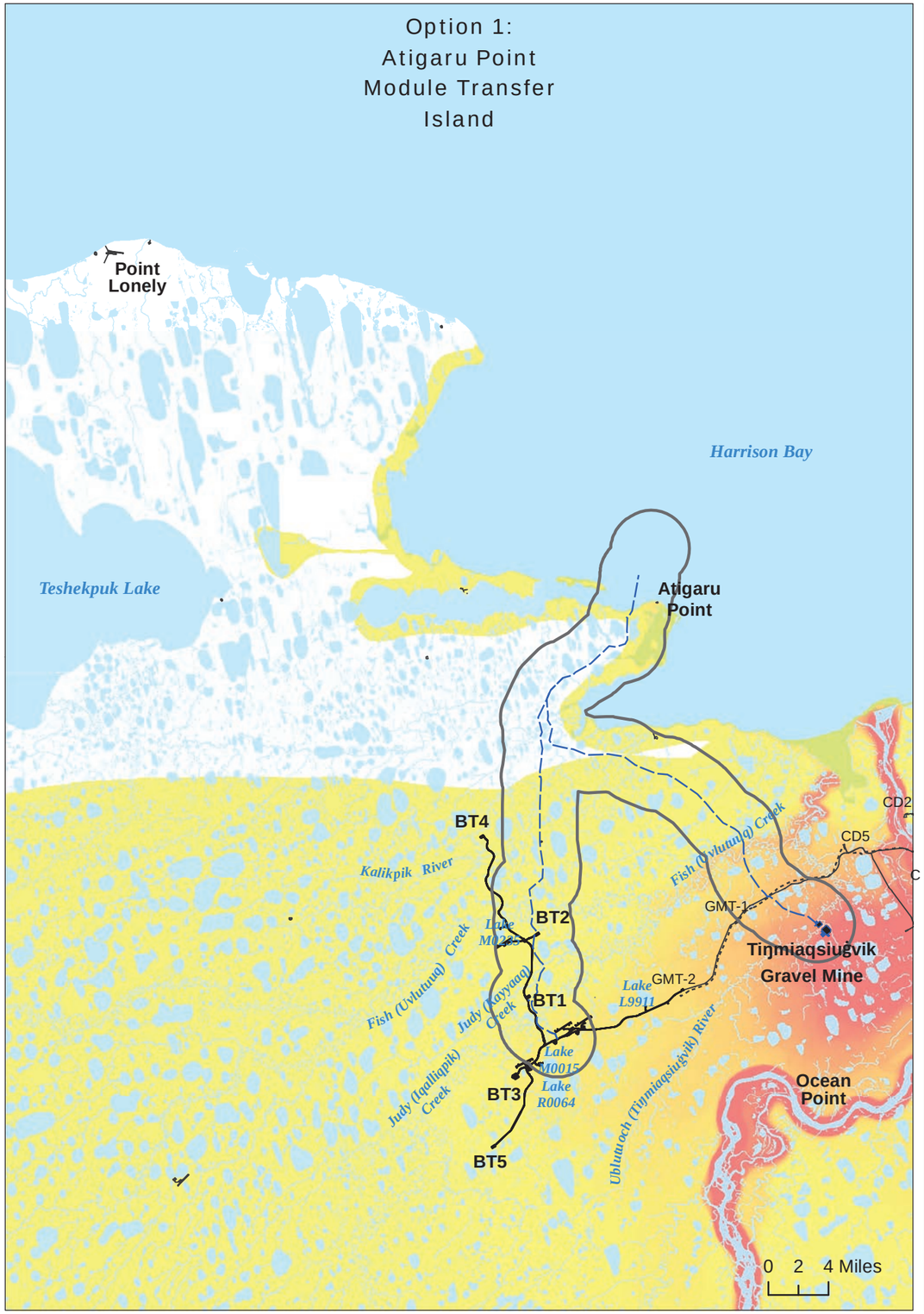
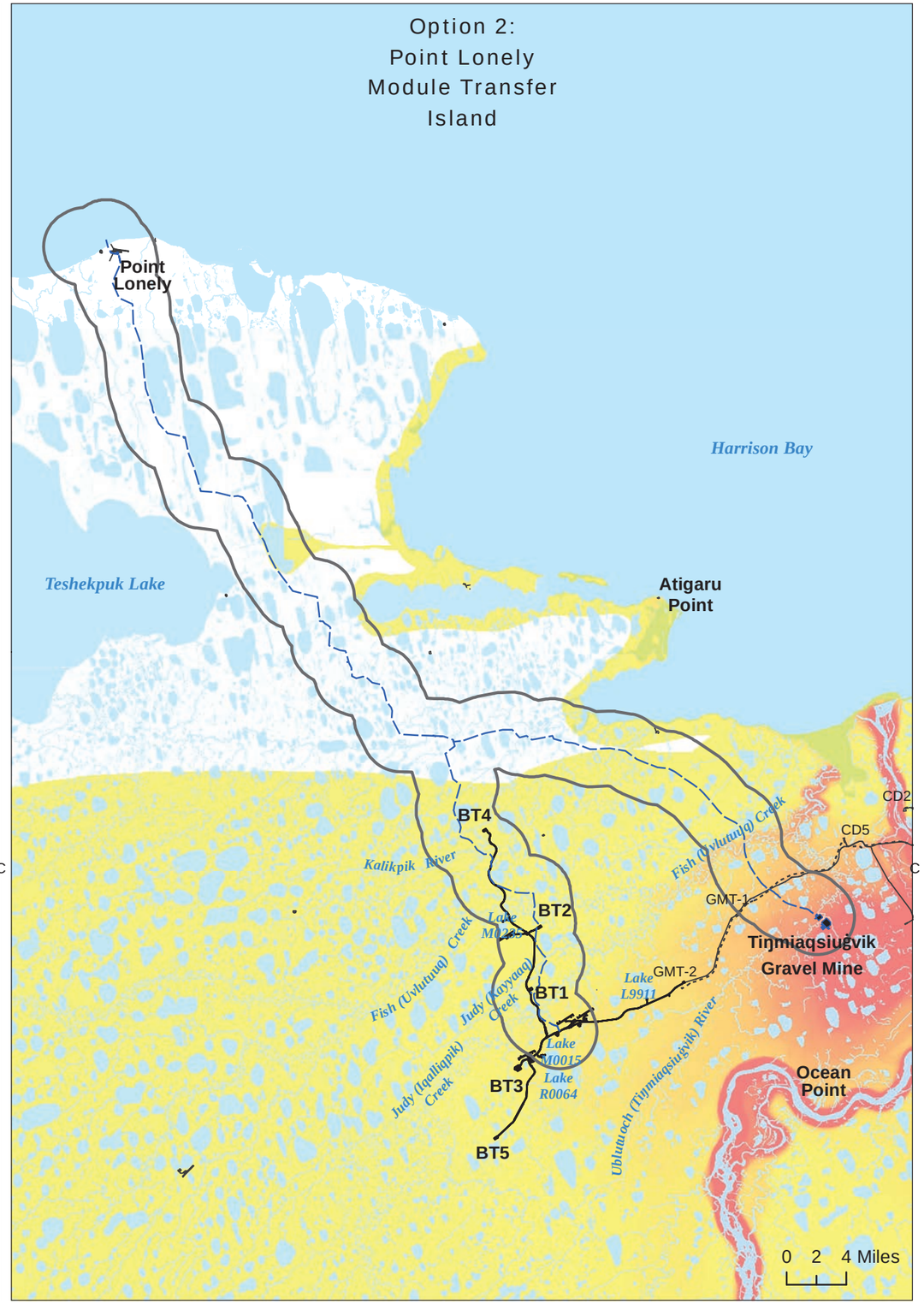
Figure 3.16.17

Option 1:
Atigaru Point
Module Transfer
Island

Option 2:
Point Lonely
Module Transfer
Island





Subsistence Data

- Overlapping Subsistence Use Areas Caribou, January 2008 through October 2016 [a] (High / Low)

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2018a

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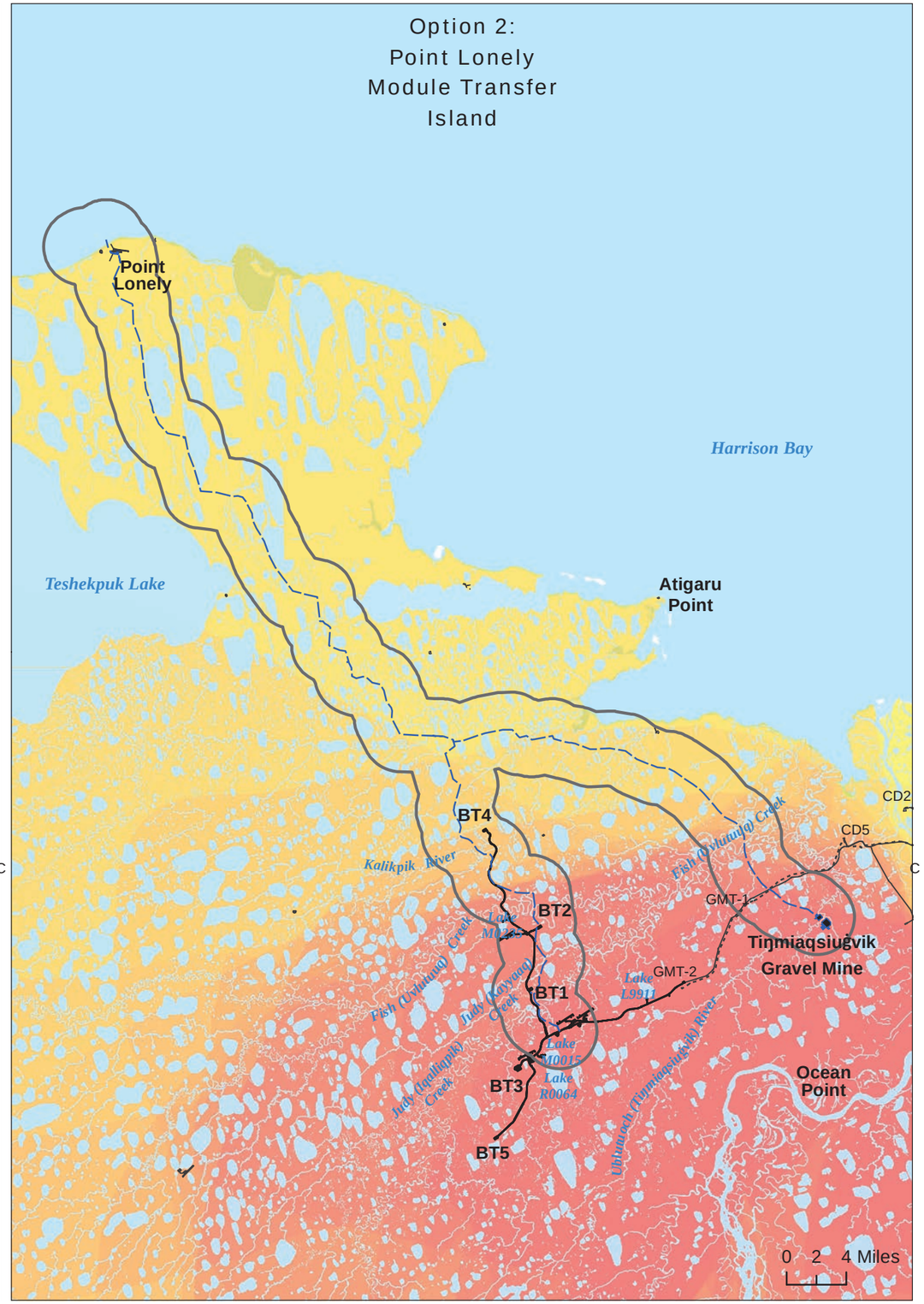
Figure 3.16.18

Option 1: Atigaru Point Module Transfer Island

Option 2: Point Lonely Module Transfer Island



Subsistence Data

- High / Low — Overlapping Subsistence Use Areas Wolf and Wolverine, 1995-2006 [a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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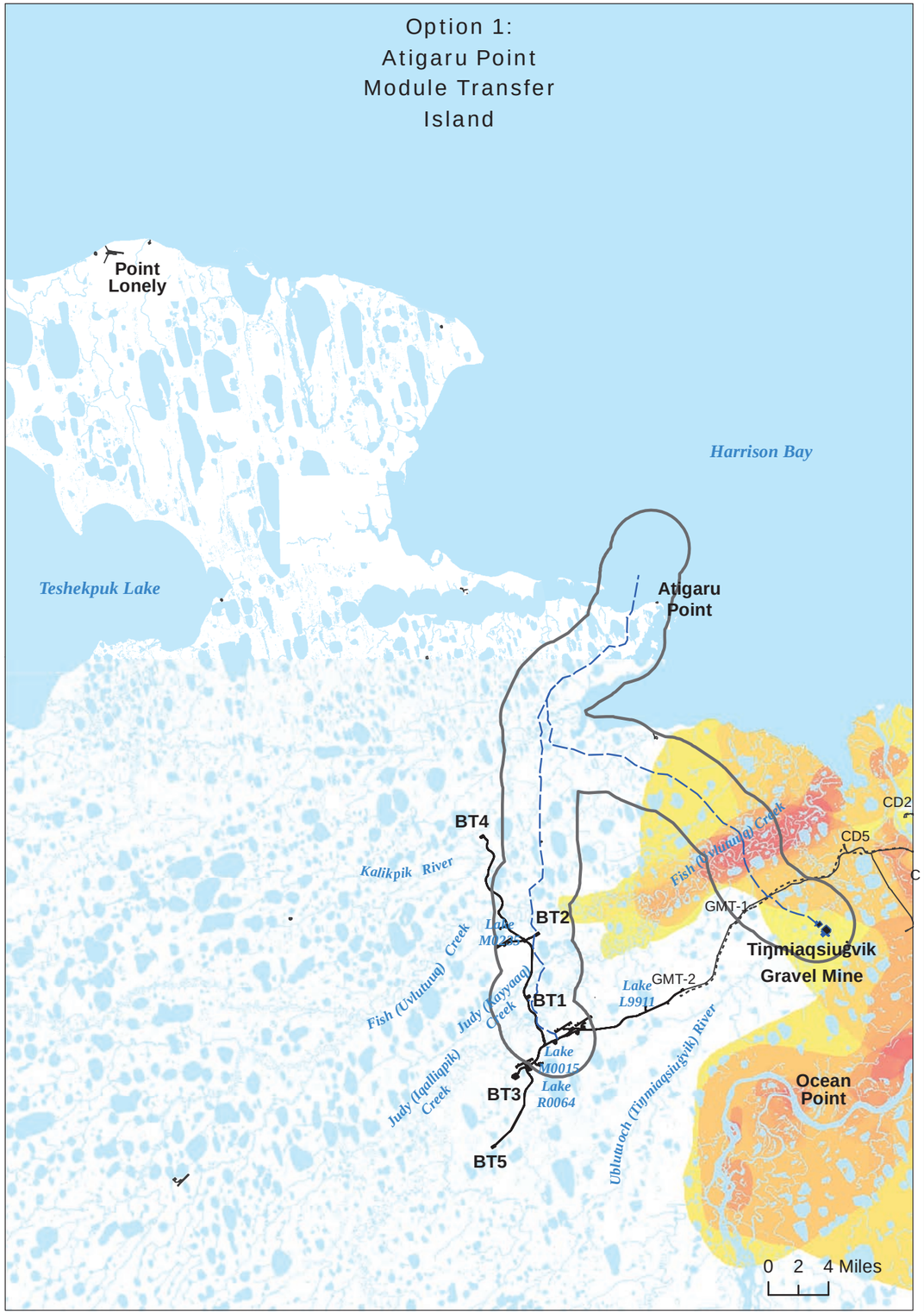
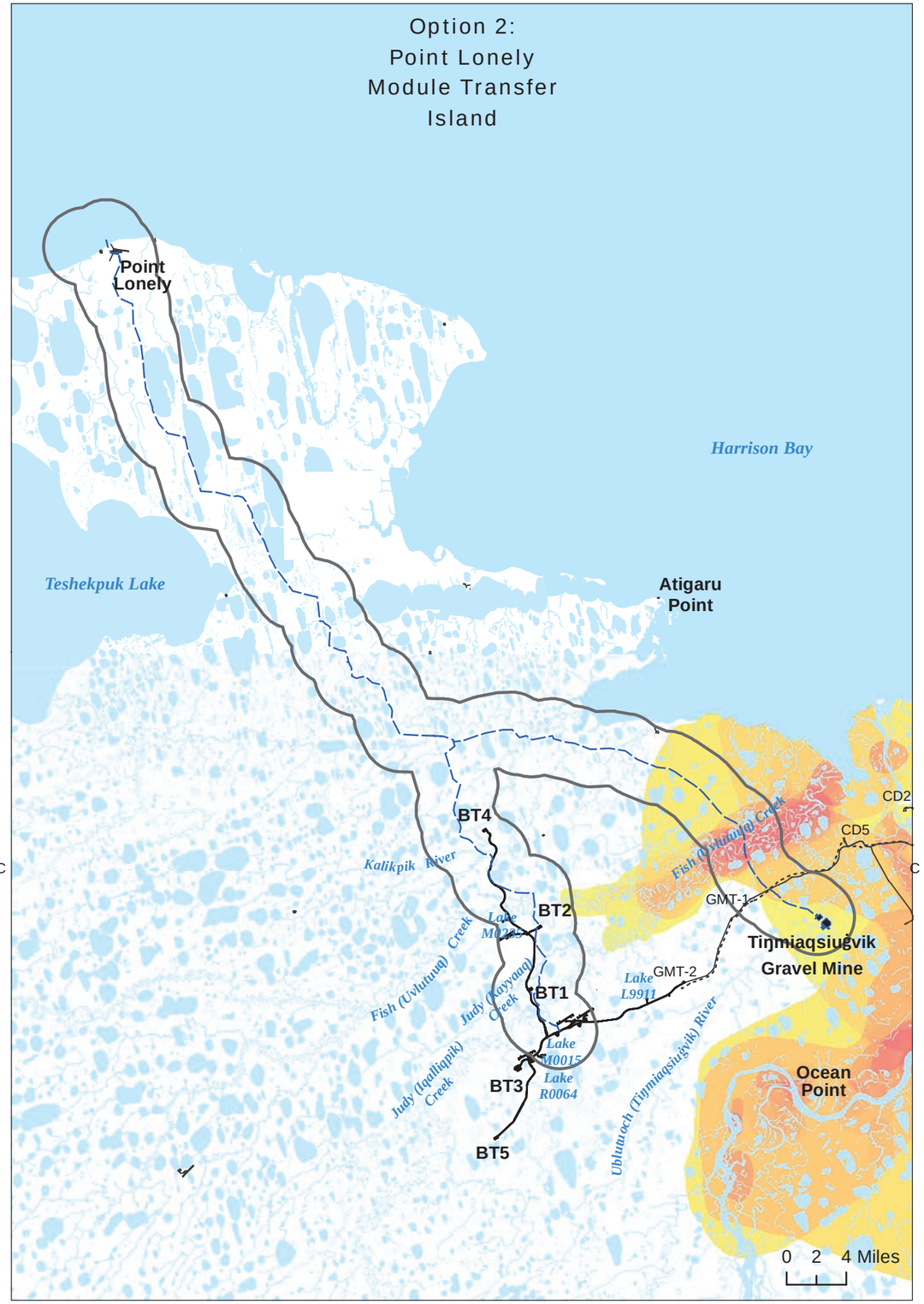
Figure 3.16.19

Option 1: Atigaru Point Module Transfer Island



Option 2: Point Lonely Module Transfer Island



Subsistence Data

- High / Low — Overlapping Subsistence Use Areas Goose, 1995-2006 [a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.20

Option 1:
Atigaru Point
Module Transfer
Island

Option 2:
Point Lonely
Module Transfer
Island

Point Lonely
Atigaru Point
Harrison Bay
Teshekpuk Lake
Kalikpik River
Fish (Uvlutuuq) Creek
Judy (Kayyaaq) Creek
Judy (Iqalliqpik) Creek
Ublutuoch (Tiŋmiaqsiuġvik) River
Lake M0025
Lake M0015
Lake R0064
Lake L9911
BT1
BT2
BT3
BT4
BT5
GMT-1
GMT-2
CD2
CD5
Tiŋmiaqsiuġvik Gravel Mine
Ocean Point
0 2 4 Miles

Subsistence Data

High / Low — Overlapping Subsistence Use Areas Bearded and Ringed Seal, 1995-2006 [a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.21

Option 1:
Atigaru Point
Module Transfer
Island

Option 2:
Point Lonely
Module Transfer
Island

Point Lonely
Harrison Bay
Teshekpuk Lake
Atigaru Point
BT4
BT2
BT1
BT3
BT5
Kalikpik River
Fish (Uvlutuuq) Creek
Judy (Kayyaaq) Creek
Judy (Iqalliqpik) Creek
Lake M0023
Lake M0015
Lake R0064
Lake L9911
Fish (Qivlutuuq) Creek
Ublutuoch (Tiŋmiaqsiuġvik) River
GMT-1
GMT-2
CD2
CD5
Tiŋmiaqsiuġvik Gravel Mine
Ocean Point
0 2 4 Miles

Subsistence Data
- High / Low: Overlapping Subsistence Use Areas Eider, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. Source: SRB&A 2010b

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Figure 3.16.22

Option 1: Atigaru Point Module Transfer Island

Option 2: Point Lonely Module Transfer Island

Subsistence Data
- Fish, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.23

Option 1: Atigaru Point Module Transfer Island

Option 2: Point Lonely Module Transfer Island

Subsistence Data

- High / Low — Overlapping Subsistence Use Areas Moose, 1995-2006 [a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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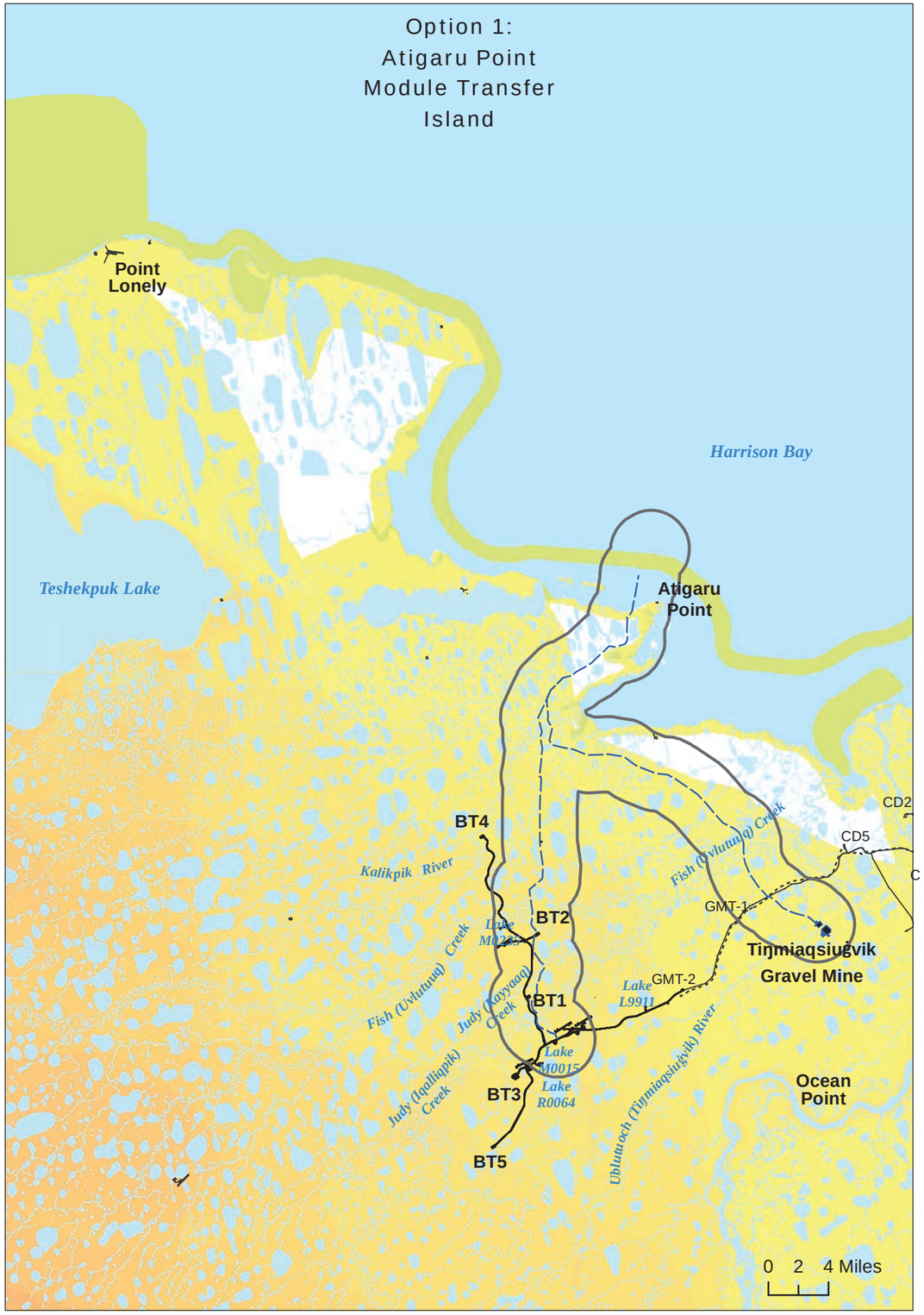
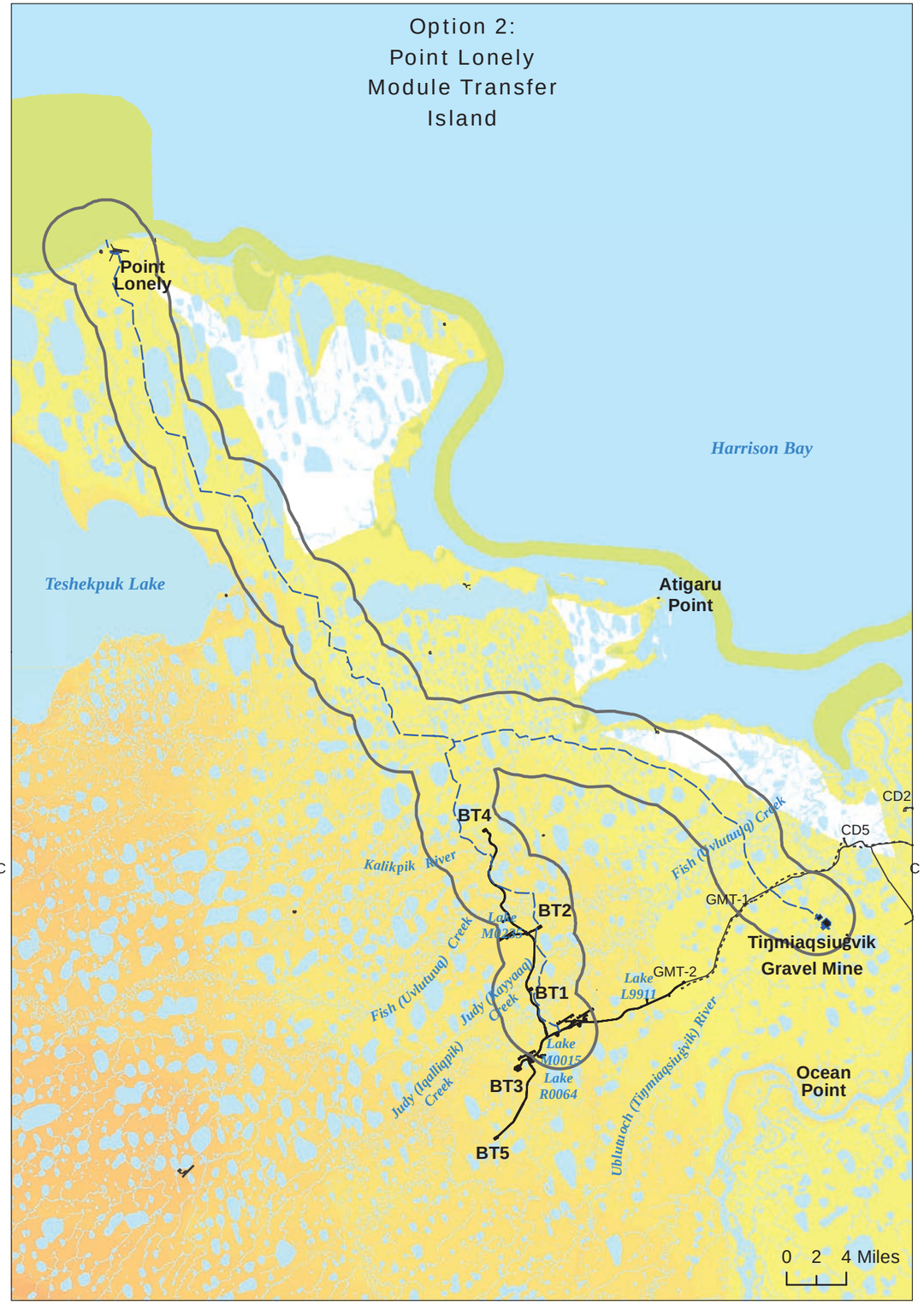
Figure 3.16.24





Subsistence Data

High / Low — Overlapping Subsistence Use Areas All Resources, 1997-2006 [a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.25

Option 1:
Atigaru Point
Module Transfer
Island

Option 2:
Point Lonely
Module Transfer
Island

Point Lonely
Harrison Bay
Teshekpuk Lake
Atigaru Point
Kalikpik River
Fish (Uvlutuuq) Creek
Judy (Kayyaaq) Creek
Judy (Iqalliqpik) Creek
Ublutuoch (Tinmiaqsiugvik) River
Lake M0015
Lake R0064
Lake L9911
Lake M0228
BT1
BT2
BT3
BT4
BT5
GMT-1
GMT-2
CD2
CD5
Tinmiaqsiugvik Gravel Mine
Ocean Point
0 2 4 Miles

Subsistence Data
- High / Low: Overlapping Subsistence Use Areas Caribou, 1997-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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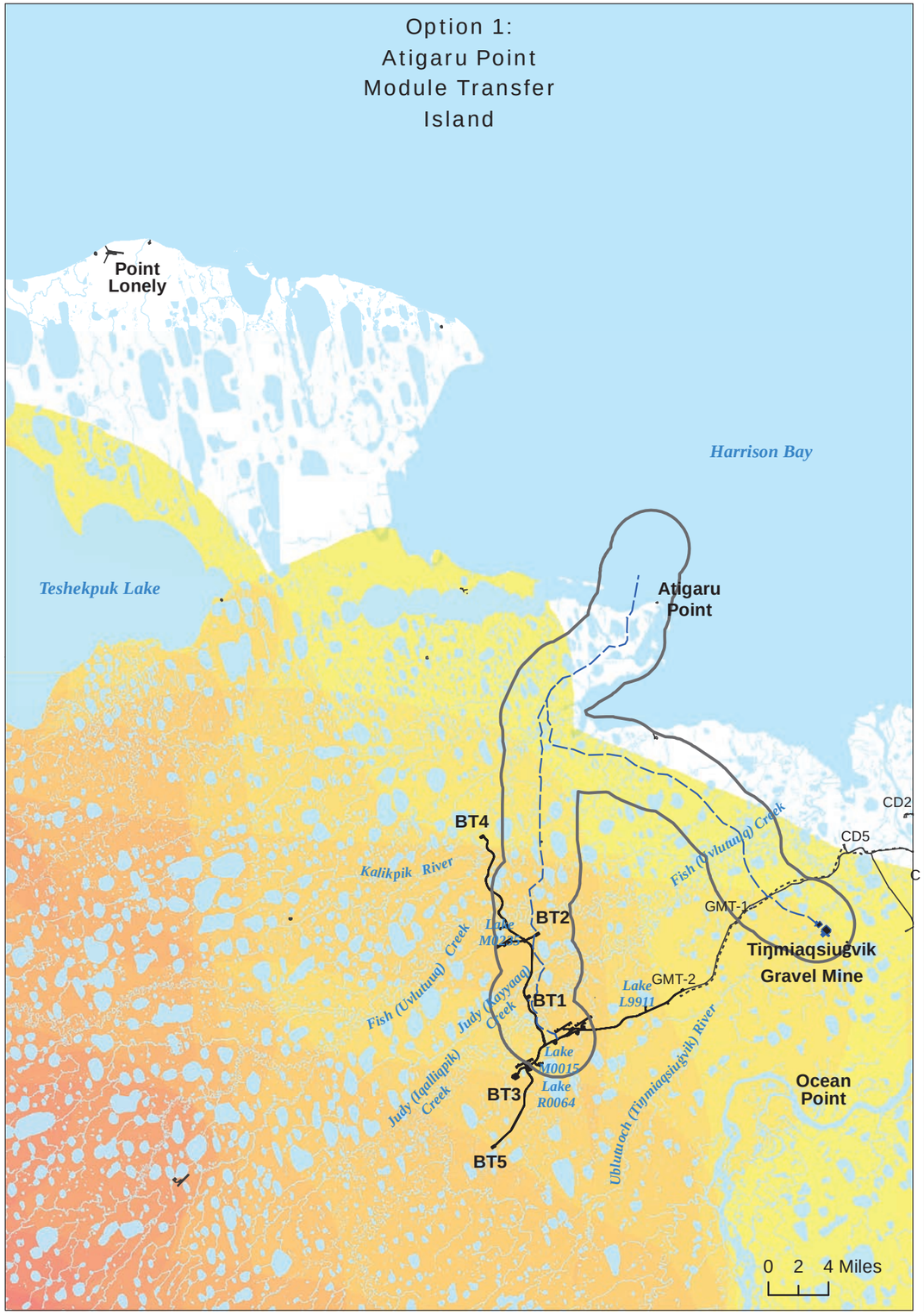
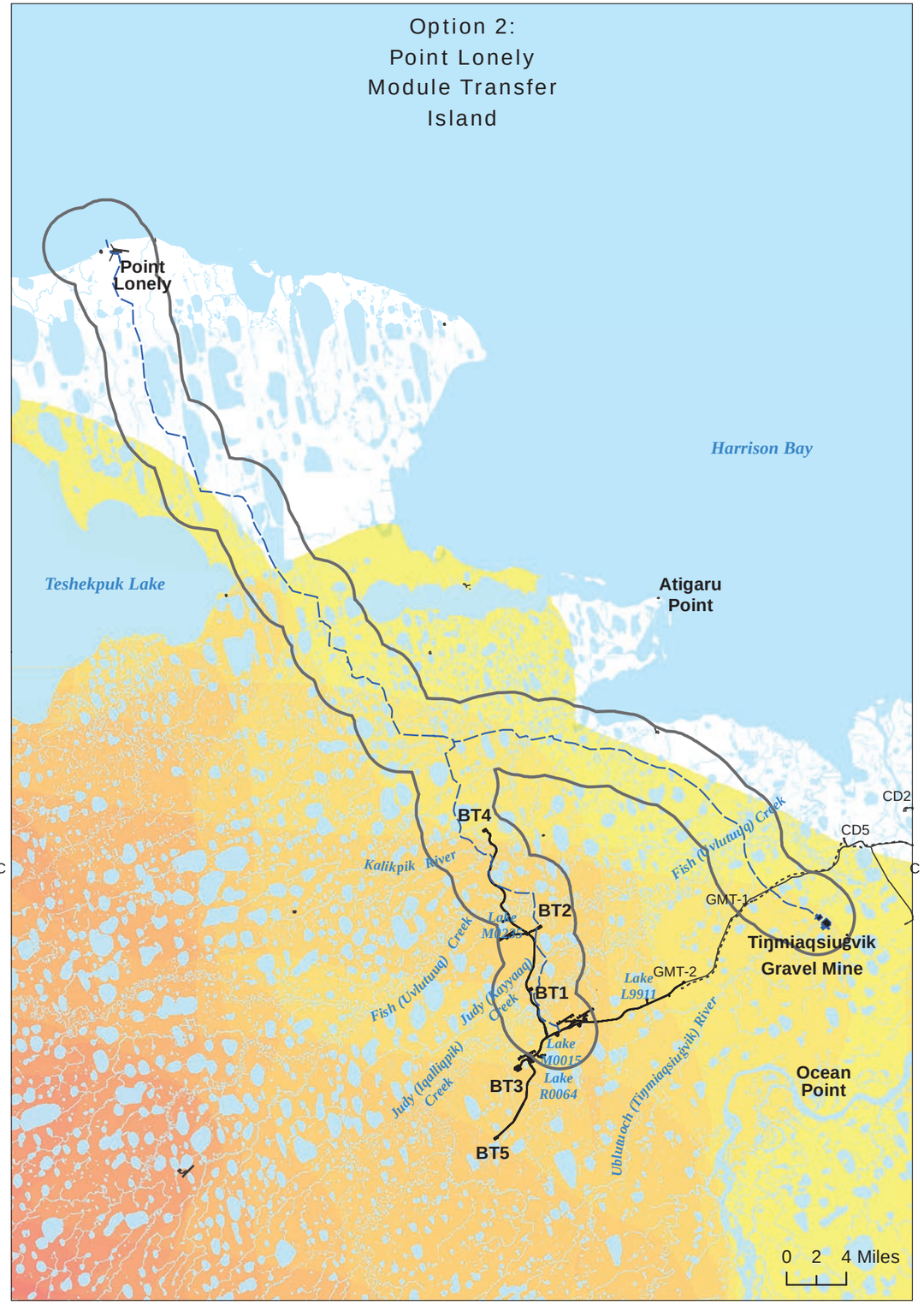
Figure 3.16.26

Option 1: Atigaru Point Module Transfer Island



Option 2: Point Lonely Module Transfer Island



Subsistence Data

- High / Low — Overlapping Subsistence Use Areas Wolf and Wolverine, 1997-2006[a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.27

Option 1:
Atigaru Point
Module Transfer
Island

Option 2:
Point Lonely
Module Transfer
Island

Point Lonely
Harrison Bay
Teshekpuk Lake
Atigaru Point
BT4
BT2
BT1
BT3
BT5
Kalikpik River
Fish (Uvlutuuq) Creek
Judy (Kayyaaq) Creek
Judy (Iqalliqpik) Creek
Lake M0228
Lake L9911
Lake M0015
Lake R0064
GMT-1
GMT-2
CD2
CD5
Tiŋmiaqsiuġvik Gravel Mine
Ocean Point
Ubluutaach (Tiŋmiaqsiuġvik) River
0 2 4 Miles

Subsistence Data
- High / Low: Overlapping Subsistence Use Areas Bearded and Ringed Seal, 1997-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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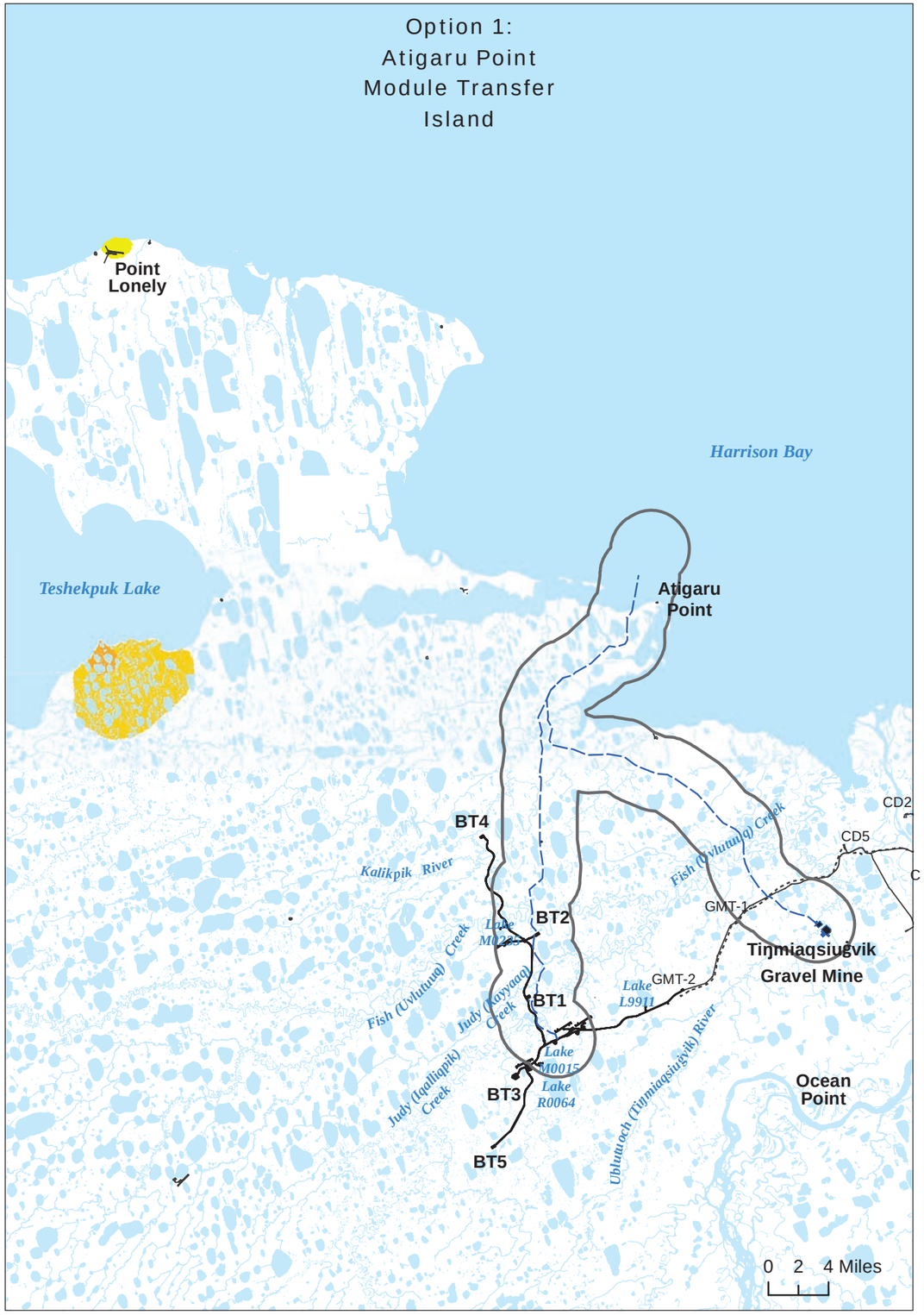
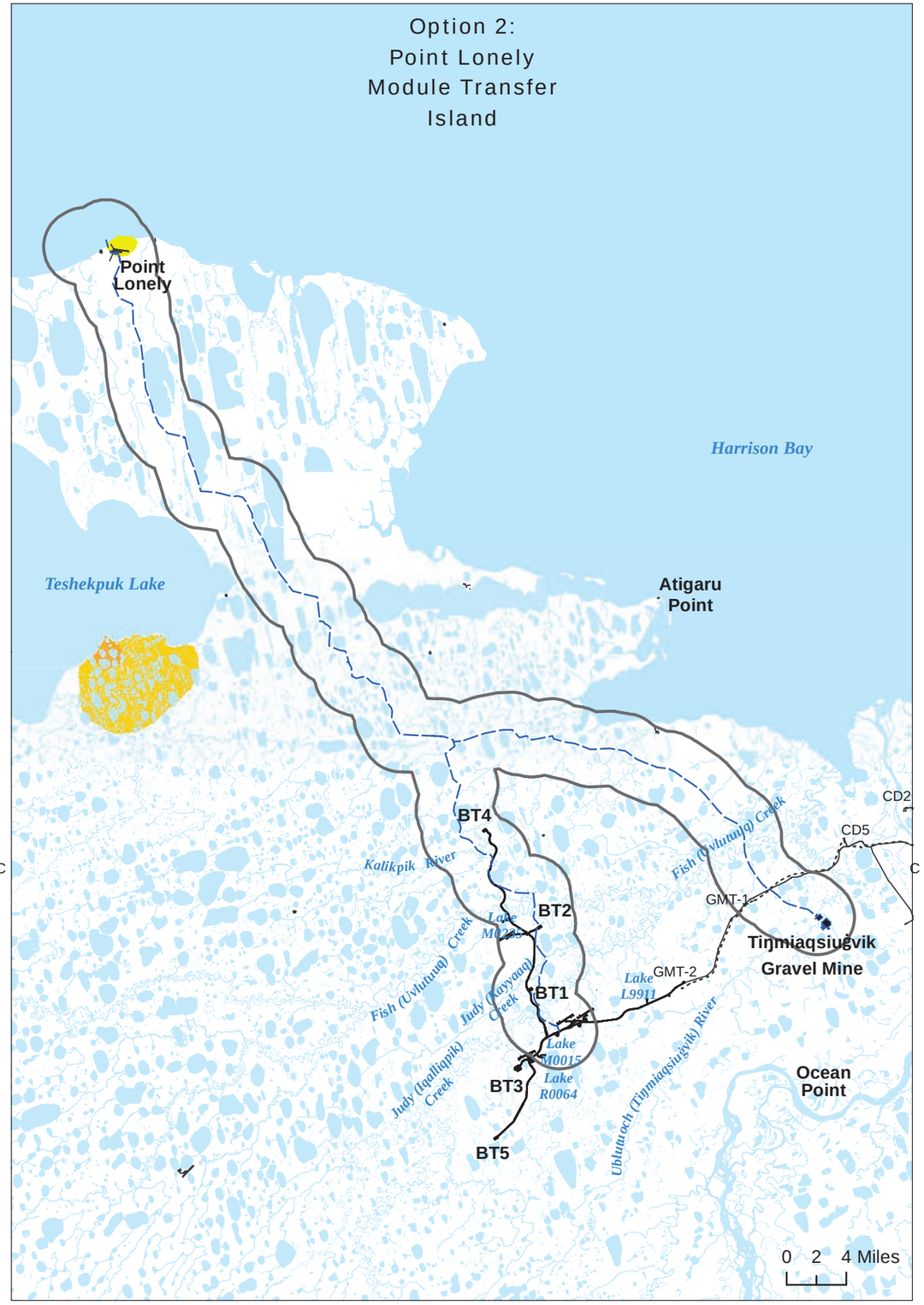
Figure 3.16.28





Subsistence Data

High / Low — Overlapping Subsistence Use Areas Geese, 1997-2006 [a]

Willow Proposed Development Features

- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.29

Option 3:
Colville River Crossing

Harrison Bay
Atigaru Point
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
GMT-1
GMT-2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Lake L9911
BT4
BT2
BT1
BT3
BT5
Kalikpik River
Fish (Uvlutuuq) Creek
Lake M0235
Lake M0015
Lake R0064
Judy (Iqalliapik) Creek
Nigliq River
Ocean Point
DS2P
0 5 10 Miles

Subsistence Data
High / Low — Overlapping Subsistence Use Areas All Resources, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.30

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
GMT-1
GMT-2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Lake L9911
Lake M0235
Lake M0015
Lake R0064
Fish (Uvlutuuq) Creek
Judy Iqalliqpik Creek
Kalikpik River
Fish (Uvlutuuq) Creek
Ikpikpuk River
BT1
BT2
BT3
BT4
BT5
Ocean Point
DS2P
0
5
10 Miles

Subsistence Data
- High / Low: Overlapping Subsistence Use Areas Caribou, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.31

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Fish (Uvlutuuq) Creek
BT1
GMT-2
Lake L9911
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
BT3
Ocean Point
Iqalliik River
DS2P
BT5
0 5 10 Miles

Subsistence Data
High
Low
Overlapping Subsistence Use Areas Caribou, January 2008 through October 2016 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2018a

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

Figure 3.16.32

Option 3:
Ocean Point Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
GMT-2
Lake L9911
BT1
Fish (Uvlutuuq) Creek
Judy (Iqalliapik) Creek
Lake M0015
Lake R0064
BT3
BT5
Ocean Point
Nigliq River
DS2P
0 5 10 Miles

Subsistence Data
High / Low — Overlapping Subsistence Use Areas Wolf and Wolverine, 1995-2006 [a]

Module Transport Analysis Area
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.33

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Fish (Uvlutuuq) Creek
GMT-2
Lake L9911
BT1
Itkillik River
Lake M0015
Judy (Iqalliqpik) Creek
Lake R0064
BT3
Ocean Point
DS2P
BT5
0 5 10 Miles

Subsistence Data
High / Low — Overlapping Subsistence Use Areas Geese, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.34

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Fish (Uvlutuuq) Creek
BT1
GMT-2
Lake L9911
Itkillik River
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
BT3
Ocean Point
DS2P
BT5
0 5 10 Miles

Subsistence Data
High / Low — Overlapping Subsistence Use Areas Eider, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.35

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
DS2P
BT4
BT2
BT1
BT3
BT5
Kalikpik River
Fish (Uvlutuuq) Creek
Lake M0235
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
GMT-1
GMT-2
Lake L9911
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Colville River
Itkillik River
Ocean Point
0 5 10 Miles

Subsistence Data
- Fish, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.36

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
GMT-1
Fish (Uvlutuuq) Creek
Kalikpik River
BT4
BT2
Lake M0235
BT1
Fish (Uvlutuuq) Creek
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
BT3
BT5
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
GMT-2
Lake L9911
Ocean Point
Ikkillik River
DS2P
0
5
10 Miles

Subsistence Data
- High / Low: Overlapping Subsistence Use Areas Moose, 1995-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.37

Option 3:
Colville River Crossing

Harrison Bay
Atigaru Point
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Fish (Uvlutuuq) Creek
BT1
GMT-2
Lake L9911
Itkillik River
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
BT3
Ocean Point
DS2P
BT5
0 5 10 Miles

Subsistence Data
High / Low — Overlapping Subsistence Use Areas All Resources, 1997-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.38

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Fish (Uvlutuuq) Creek
BT1
GMT-2
Lake L9911
Itkillik River
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
BT3
Ocean Point
DS2P
BT5
0 5 10 Miles

Subsistence Data
High
Low
Overlapping Subsistence Use Areas Caribou, 1997-2006 [a]

Willow Proposed Development Features
Module Transport Analysis Area
Ice Road
Ice Pad
Gravel Footprint

Other Infrastructure
Existing Road
Existing Pipeline
Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.39

Option 3:
Colville River Crossing

Atigaru Point
Harrison Bay
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
BT4
Kalikpik River
Fish (Uvlutuuq) Creek
GMT-1
Lake M0235
BT2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Fish (Uvlutuuq) Creek
GMT-2
Lake L9911
BT1
Itkillik River
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
BT3
Ocean Point
DS2P
BT5
0 5 10 Miles

Subsistence Data
High
Low
Overlapping Subsistence Use Areas Wolf and Wolverine, 1997-2006 [a]

Willow Proposed Development Features
Module Transport Analysis Area
Ice Road
Ice Pad
Gravel Footprint

Other Infrastructure
Existing Road
Existing Pipeline
Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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Figure 3.16.40

Option 3:
Colville River Crossing

Harrison Bay
Atigaru Point
Oliktok Dock
Kuparuk
CD3
CD2
CD1
CD5
CD4N
Colville River
GMT-1
GMT-2
Tiŋmiaqsiuġvik Gravel Mine
NUIQSUT
Lake L9911
Itkillik River
Ocean Point
DS2P
BT4
BT2
BT1
BT3
BT5
Kalikpik River
Fish (Uvlutuuq) Creek
Lake M0235
Fish (Uvlutuuq) Creek
Judy (Iqalliqpik) Creek
Lake M0015
Lake R0064
0 5 10 Miles

Subsistence Data
- High / Low: Overlapping Subsistence Use Areas Moose, 1997-2006 [a]

Willow Proposed Development Features
- Module Transport Analysis Area
- Ice Road
- Ice Pad
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Existing Infrastructure

Map prepared by
Stephen R. Braund & Associates

Source
a. SRB&A 2010b

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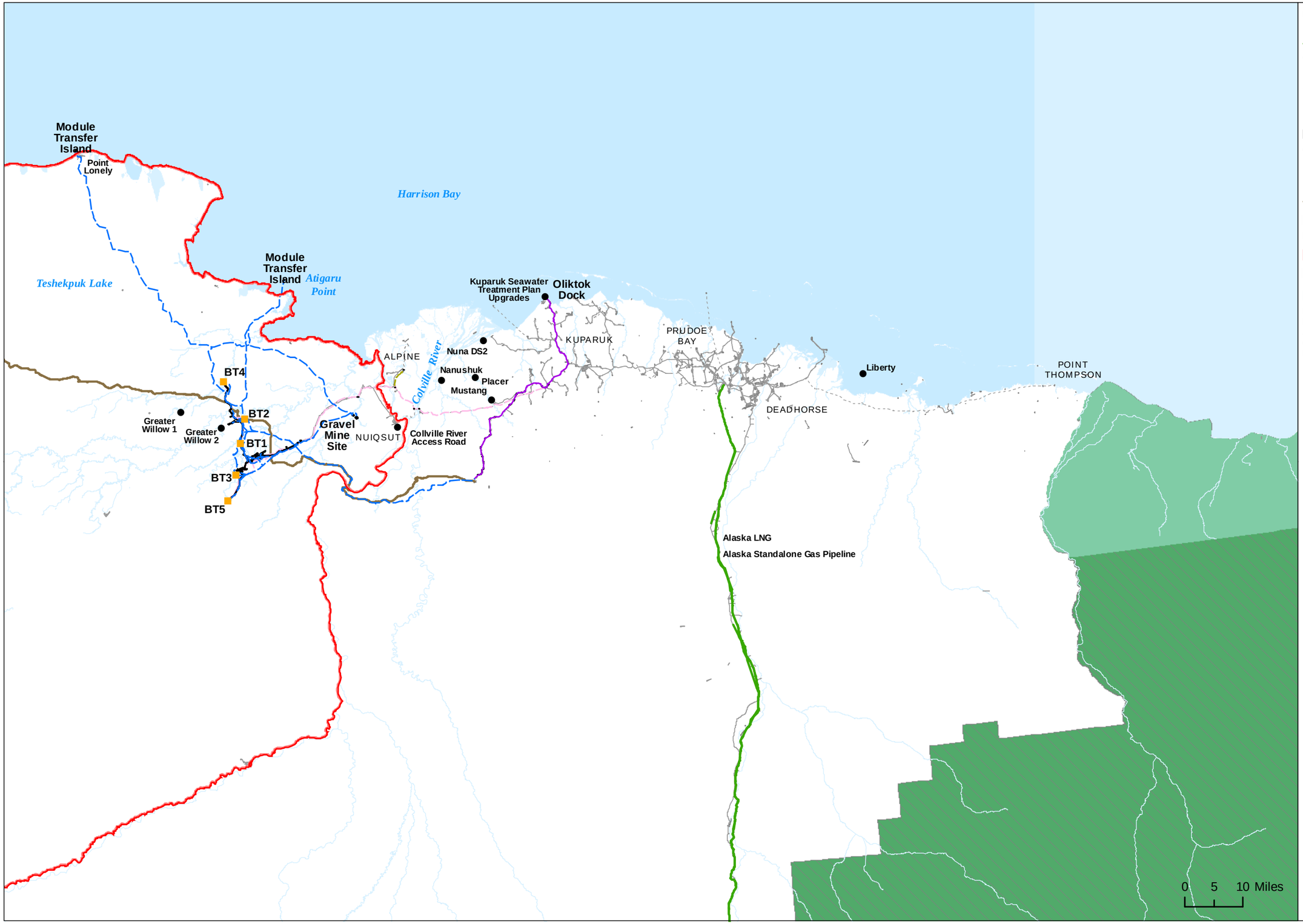
Figure 3.16.41



Reasonably Foreseeable Future Action
- Projects
- Linear Projects

Willow Proposed Development Features
- Drill Site (Not to Scale)
- Option 3 Existing Road
- New Pipeline Existing VSM
- New Pipeline New VSM
- Gravel Footprint

Other Infrastructure
- Existing Road
- Existing Pipeline
- Community Winter Access Trail
- Existing Infrastructure

Land Designation
- National Petroleum Reserve in Alaska
- Arctic National Wildlife Refuge
- 1002 Area Coastal Plain Arctic National Wildlife Refuge

Projects Not Shown:
Miscellaneous Sesimic Exploration
Arctic Strategic Transportation and Resources (ASTAR)
NPR-A Integrated Activity Plan Revisions

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Figure 3.19.1

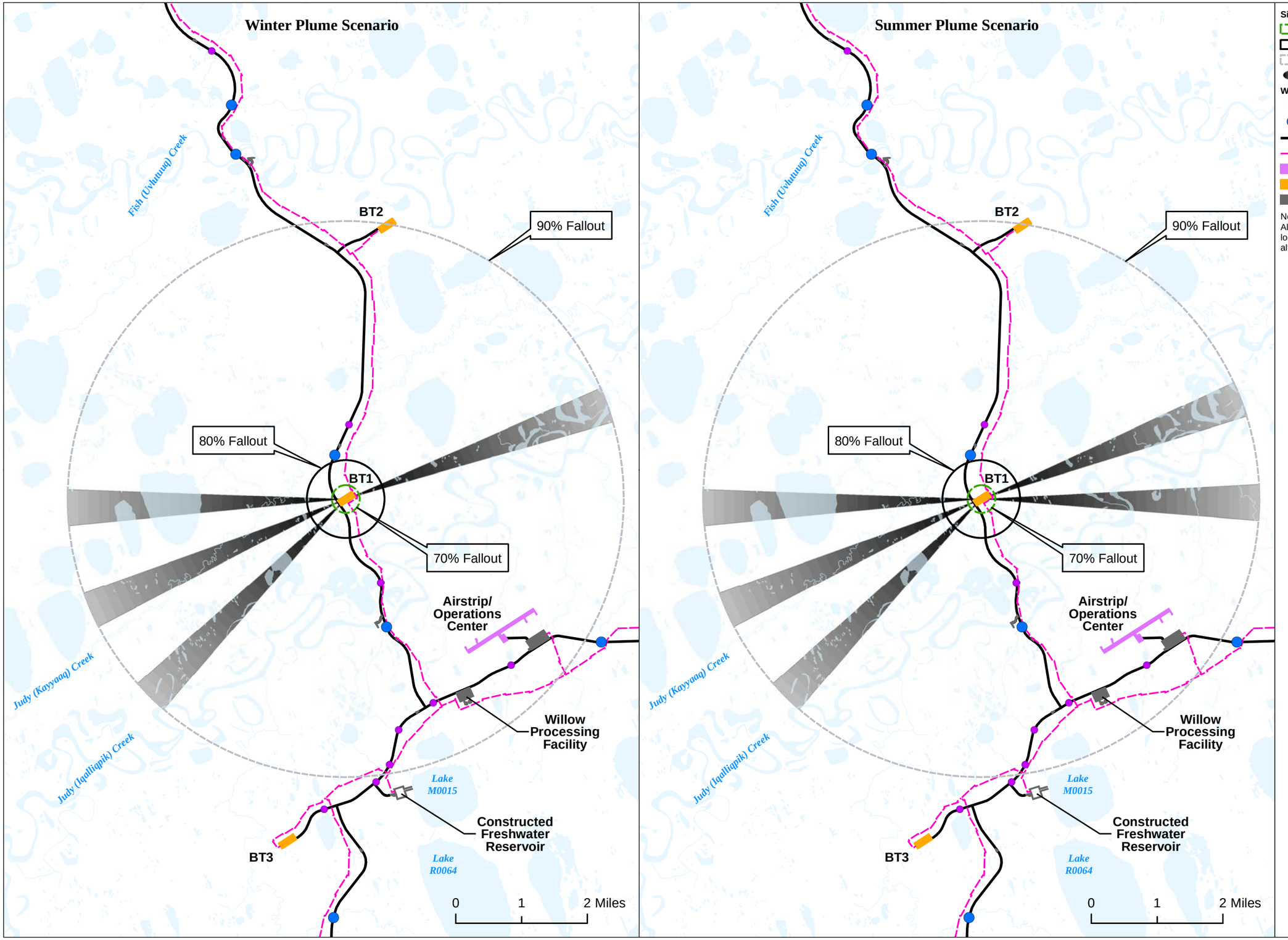

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Figure 4.3.1

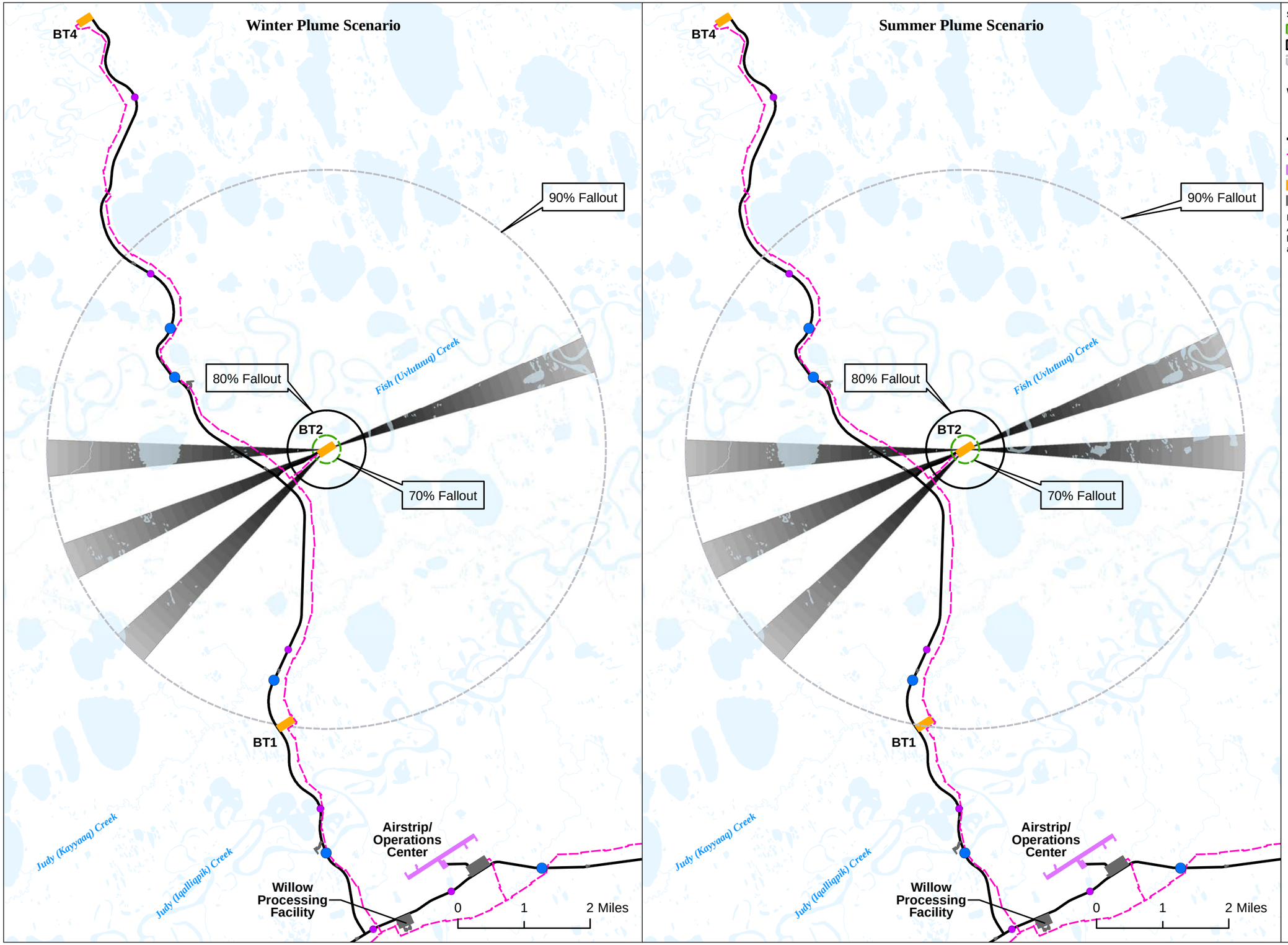

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Figure 4.3.2

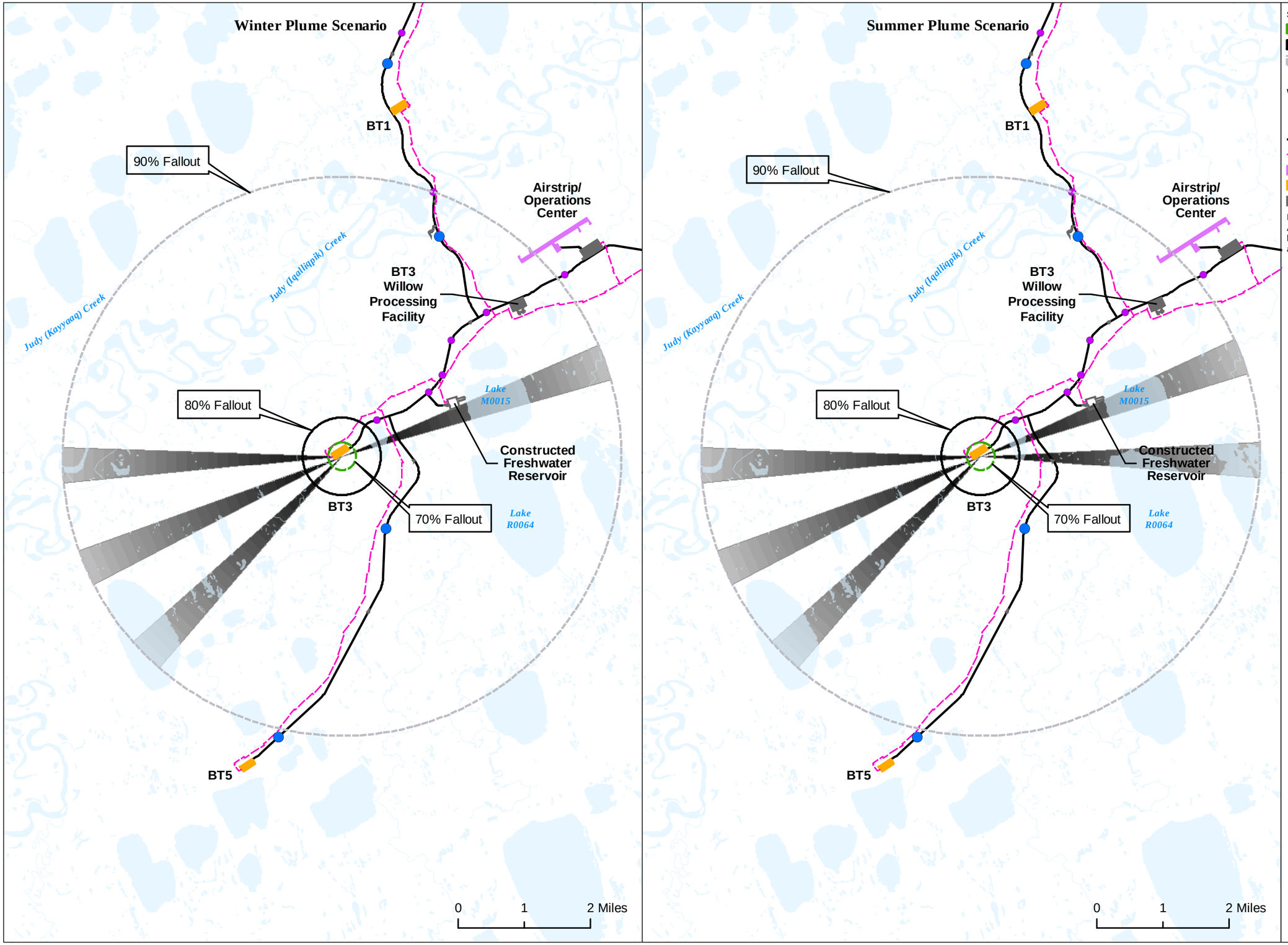

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Figure 4.3.3

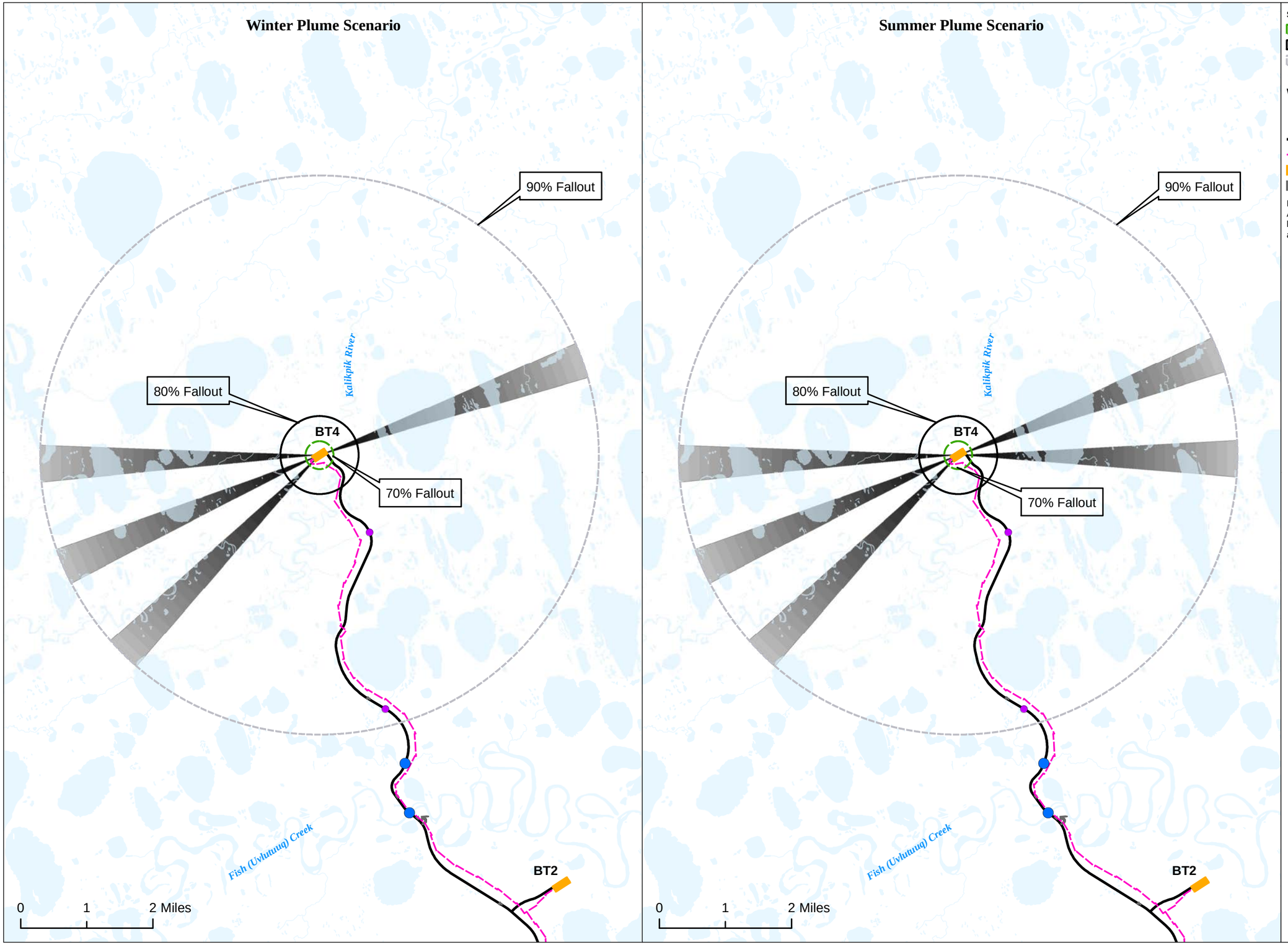

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Figure 4.3.4

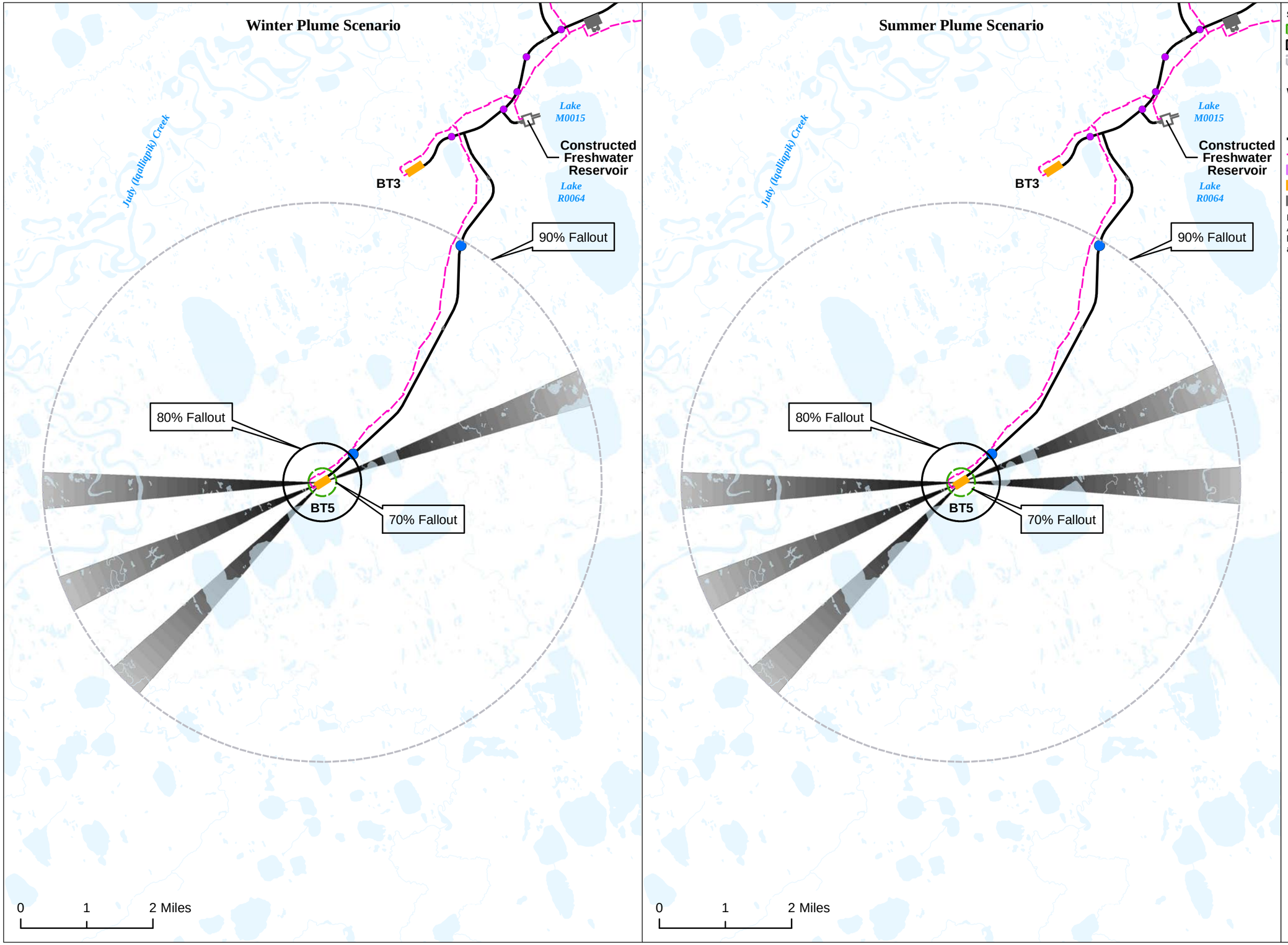

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Figure 4.3.5